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# 3DArtist

42

Practical inspiration for the 3D comm

# MASTER MODO

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Refine your skills for convincing photoreal shots

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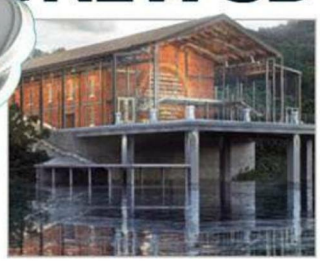

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Find out how interactive arch vis can win over a modern audience

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modo®601
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“We will cover box and polygon modelling styles, UV unwrapping, material creation, texturing as well as rendering settings and passes for postwork”

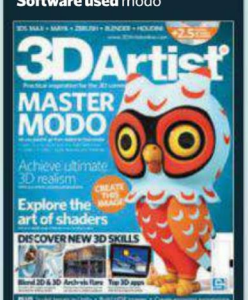
**Teodoru Badiu** explains some of the skills and techniques on offer in his insightful character-creation tutorial

**CREATE THE COVER**
Turn to page 46 for the full tutorial

## Artist info

**Teodoru Badiu**

**Personal portfolio site** www.theodoru.com
**Country** Austria
**Software used** modo




*The master of modo, Teodoru Badiu, lends a helping hand with a five-page workshop on building bold characters, taking you from sketch to final render and into Photoshop for final touches. Pick up tips and improve your modo workflow to create characters that will attract attention – for all the right reasons!*

# Welcome

## to the magazine and 116 pages of amazing 3D

**Every issue you can count on...**

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and fantastic artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

**Hello and welcome to 3D Artist magazine!** Don't be alarmed: while I may share a remarkably similar name to 3D Artist's awesome ex-editor Sarah Slee, I'm here to grab the reins for this and many future issues of your favourite 3D mag.

Sarah brought us 20 content-packed issues since joining the team on issue 21, and while we're super sad to see her leave our crazy world of 3D, we're excited about continuing the spectacular publication she has shaped over the last two years.

I hope you'll enjoy this fun-filled issue to help you master the skills you know, and learn the ones you don't. With so much in store, I'll let you get stuck in...

Enjoy the issue!

*Lynette Clee, Deputy editor*

## This issue's team of expert artists...

**Teodoru Badiu**

No stranger to the pages of **3D Artist,** Teodoru whips up another tutorial treat to help us master the modo workflow

**Mike Campau**

Fall head over heels for Mike's compositing skills in a step-by-step tutorial that blends organic 3D with photography

**Eric Cain**

Photorealism is the Holy Grail for 3D artists. Eric teaches us all he knows to help us reach perfect renders every time

**Lech Sokołowski**

We can't get enough of Lech. Back to wrap up his Blender tutorial series, we watch in awe as he finishes his house-build project

**Digital-Tutors**

The gleaming fountain of knowledge Digital-Tutors gives us insight into how to create HDR images for better lighting

**Yinxuan Li**

We discovered Yinxuan on 3DArtistOnline.com, and couldn't wait to find out how she creates expressions!

**Roald Høyer-Hansen**

Our sunburnt Norwegian friend is back from his travels to explain terrain sculpting in the free game engine, Unity

**Nacho Riesco Gostanza**

Saddened by your ZBrush renders? Discover how Nacho breathes live into his ZBrush images with a little Photoshop work

**Paul Hatton**

Stepping up for the Brits, Paul teaches us the art behind creating convincing materials in 3ds Max in a bite-sized tutorial

**Gustav Melich**

Going where many fear, Gustav tackles Houdini to show how we can all demolish a bridge with the right know-how, of course

**Duncan Evans**

When he's not drowning out the sounds of screaming emo bands, Duncan is rounding up the best apps for creative souls

**Michael Burns**

Following an awesome guide to renderers last issue, Michael reveals how render farms can make a molehill out of a mountain

## Sign up, share your art and chat to other artists at www.3dartistonline.com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## Increase your rendering power

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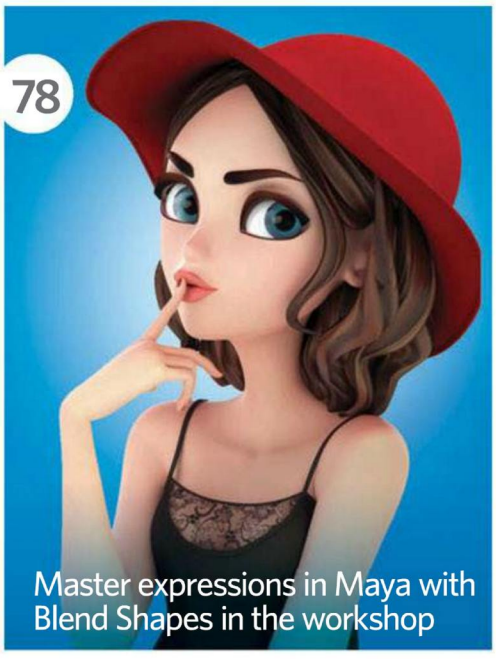

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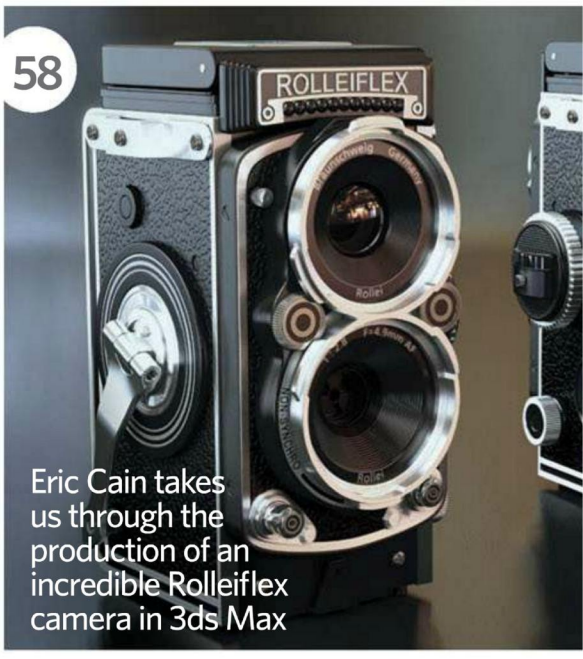


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Eric Cain takes us through the production of an incredible Rolleiflex camera in 3ds Max

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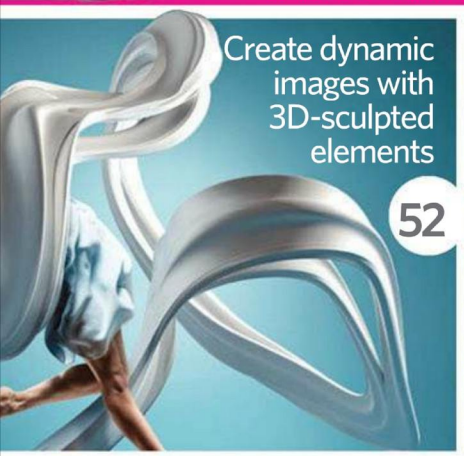
Turn to page 90 for details



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Unlock your full artistic ability


# On the Disc

- 2.5 hours of video tuition
- $100 worth of 3D models
- Free textures and an HDRi
- 100 royalty-free photos

**Turn to page 112 for the complete list of the disc's contents**

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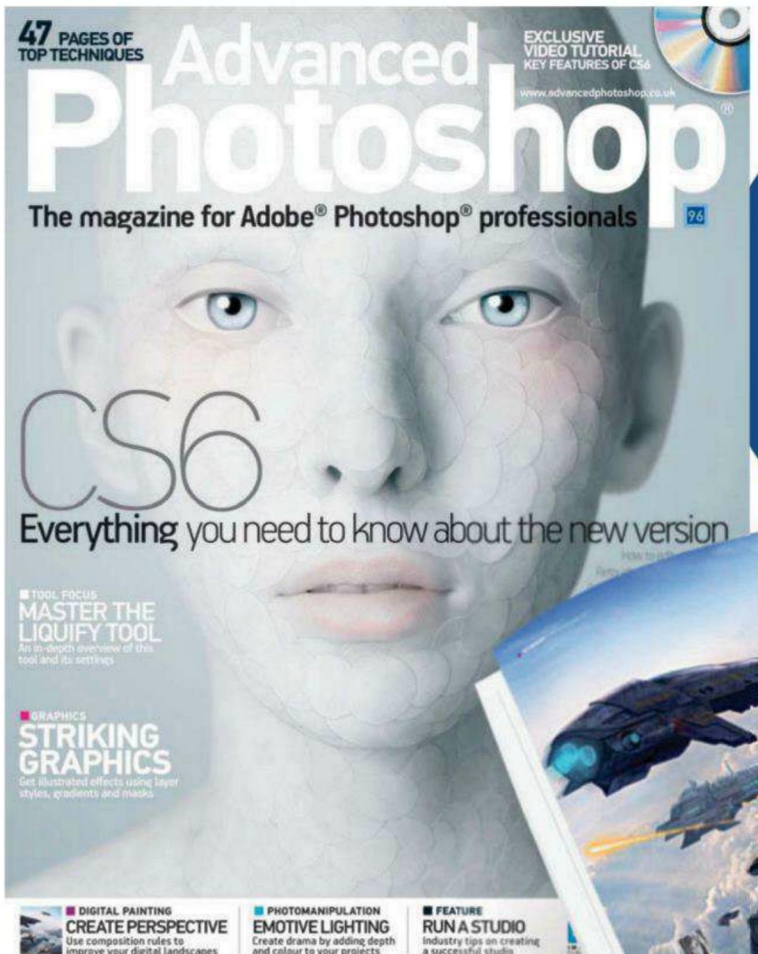


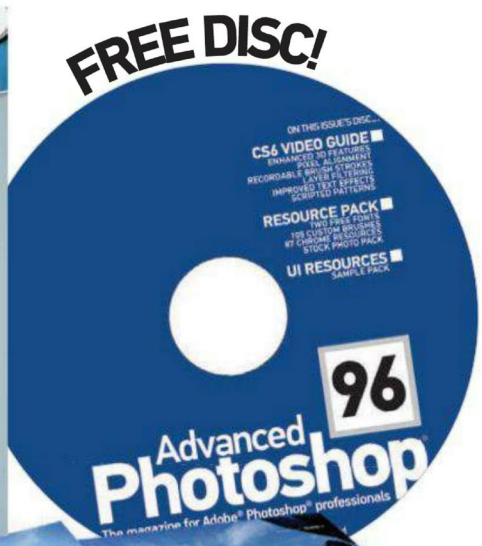

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# WELCOME TO THE GALLERY

**Five pages of great artwork from the 3D community**

*Images we love!*

## Artist info

**Kyle Kuhlman**

**Personal portfolio site** http://kylekuhlman.cgsociety.org

**Country** United States

**Software used** 3ds Max, V-Ray, Photoshop

Work in progress...

## Featured artists

**Kyle Kuhlman**

A beautiful piece that takes inspiration from the technological innovations of the past

**Crtomir Just**

Crtomir offers a helping of Eighties nostalgia with this wonderful clutter

**Tomasz Strzalkowski**

This ZBrush creation demonstrates some fantastic textures with a painterly effect

**Adam Martinakis**

Martin's piece blends characters and scene together to create a mind-boggling effect

**Maxim Goudin**

DOF is put to great use here, bringing an unexpected but welcome tone

> "[I was] inspired by the brilliant 18th Century European watchmakers... Aesthetically I was influenced by Baroque lighting, and compositions by artists such as Vermeer and Rembrandt"
>
> **Kyle Kuhlman,** *The Watchmaker,* 2012

## Get your artwork featured in these pages

Simply send it to the **3D Artist** Gallery. Here's how...

### Enter online

**3DArtistonline.com**

Hang your art in our online gallery and get selected for the magazine

**1. Register with us**

Check out the website below and click on Register. Choose a username and password and you're ready to go.

**www.3dartistonline.com**

**2. Upload your images**

Once registered, you can upload images to your gallery – there's no limit on numbers but check the size criteria.

**3. Tell us about them!**

Have an image you feel passionate about? Drop editorial an email at **lynette.clee@imagine-publishing.co.uk**.

### Email or post

You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

**lynette.clee@imagine-publishing.co.uk**

**The Gallery, 3D Artist, Imagine Publishing, Richmond House, 33 Richmond Hill, Bournemouth, Dorset BH2 6EZ**

## Comment on more great 3D art...

Head straight over to **www.3dartistonline.com**, register and you can leave comments for other artists. Some of the people featured here already have their galleries, so get online and join our club!

Create your gallery today: www.3dartistonline.com

## The team Loves

This image will no doubt resonate with many children of the Eighties – it's a beautiful testament to those objects that we'll each hold on to just for nostalgia's sake!

**Lynette** Deputy Editor

> The idea was to make a still life with objects that have a history, a story to tell. They are remnants of a time and place where I grew up, [in] Yugoslavia, and all had some kind of an influence on my childhood or marked certain events in my life. A digital souvenir of a time when not so many things were digital!
>
> **Crtomir Just,** *Memories*, 2012

### Artist info

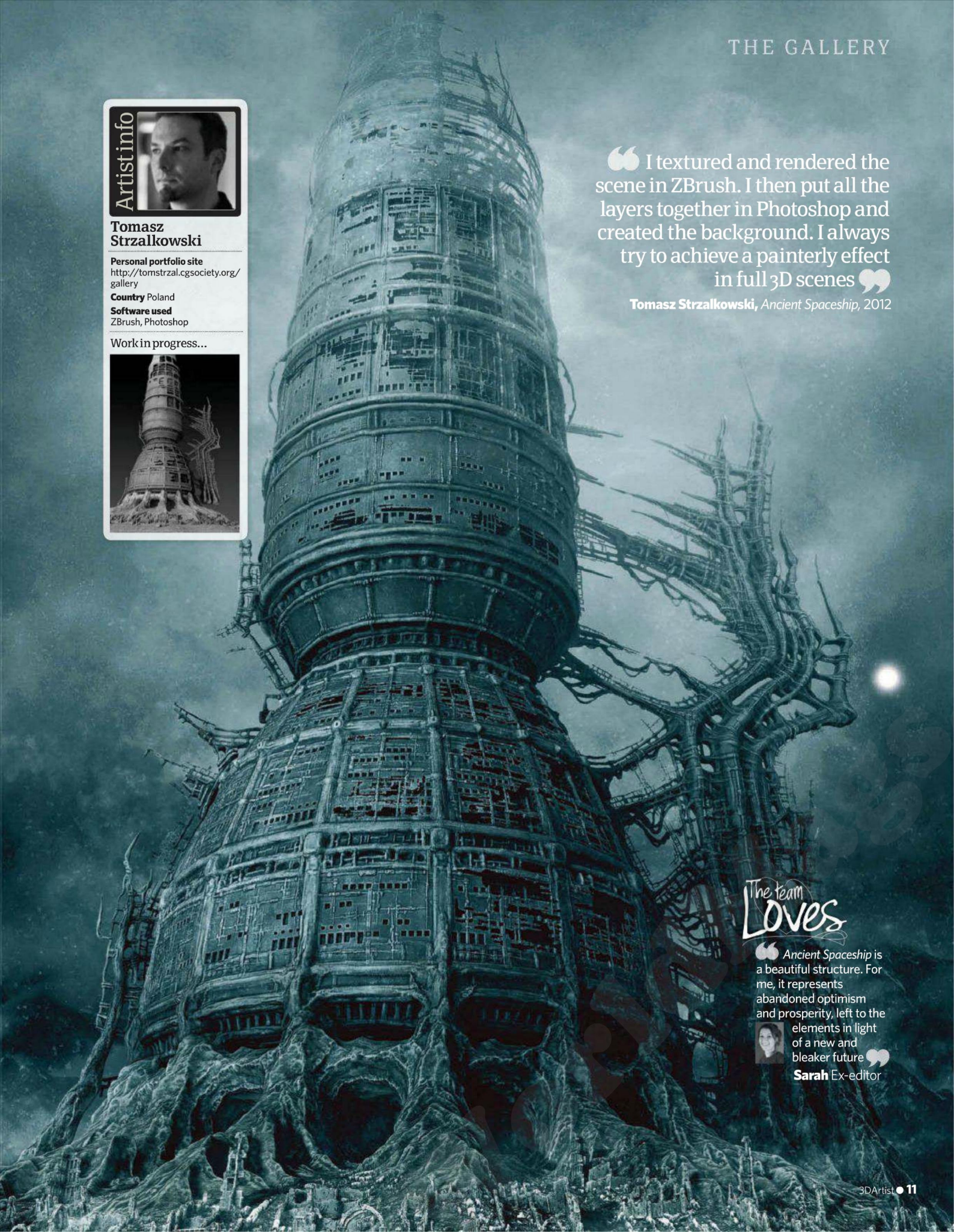
**Crtomir Just**

**Personal portfolio site**
http://choerte.cgsociety.org

**Country** Slovenia

**Software used**
3ds Max, V-Ray, Photoshop

Work in progress...



Artist info



**Tomasz Strzalkowski**

**Personal portfolio site**
http://tomstrzal.cgsociety.org/gallery

**Country** Poland

**Software used**
ZBrush, Photoshop

Work in progress...



"I textured and rendered the scene in ZBrush. I then put all the layers together in Photoshop and created the background. I always try to achieve a painterly effect in full 3D scenes"

**Tomasz Strzalkowski,** *Ancient Spaceship,* 2012

The team Loves

"*Ancient Spaceship* is a beautiful structure. For me, it represents abandoned optimism and prosperity, left to the elements in light of a new and bleaker future"

**Sarah** Ex-editor

## Artist info



**Adam Martinakis**

**Personal portfolio site**
http://adamakis.blogspot.co.uk

**Country** Greece

**Software used**
DAZ 3D, 3ds Max, V-Ray

Work in progress...



### The team Loves



"This unique piece demonstrates wonderful use of the DAZ 3D models, camouflaged against their background"

**Lynette** Deputy Editor

"My aim was to create a contrast between two characters to investigate their relationship in a mosaic black and white environment. The actors are puzzled in black and white pieces"

**Adam Martinakis,** *The Puzzle Approach,* 2012

See your artwork here...
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Share your art, comment on other artists' images

"A few years ago I was impressed with Camilla D'Errico's *Helmet Girls* series, and the whole subgenre of 'cute girl trapped inside some sort of gear'. So basically, I've tried to get rid of the girl, leaving only the shell"

**Maxim Goudin,** *Headache*, 2012

## Artist info

### Maxim Goudin

**Personal portfolio site**
http://your1st.deviantart.com

**Country** Ukraine

**Software used**
3ds Max, After Effects, Photoshop

Work in progress...

## The team Loves

"The potential menace of this character is softened greatly by the gorgeous lighting and soothing visual effects. The slight DOF effect helps bring out the incredible detail in the mechanics, too"

**Lynette** Deputy Editor

Not to be distributed

# Design agencies turn to 3D printing

## Redweb rolls up its sleeves to build a 3D printer as it seeks out new technologies and trends

**Redweb is a digital agency based in Bournemouth that specialises in web design and construction, with recent clients including HM Treasury and The Scottish Parliament.** "Our vision is to be an agency with innovation at its heart," says head of innovation at Redweb, David Burton.

Having recently won – for the second year in a row – Econsultancy's Most Innovative Digital Agency, the company is always looking for new technologies to explore and evaluate for its clients. "3D printing looks like it's going to be hugely important. It has the potential to totally revolutionise rapid prototyping, product design, manufacturing and retail over the next few years in the same way that the internet has changed the way we live and work," David comments. "Hearing about 3D printing was a real jaw-dropping moment. The advances that have been made recently are stunning. Seeing artefacts printed in plastics, resin, ceramic and chocolate is cool, but Anthony Atala's TED talk about printing a human kidney highlights just one way in which this technology could really improve our lives."

Currently building a RepRap 3D printer in the Innovation Lab at Redweb, David has already got his first 3D-print insight: a shot glass. "I've heard it's the traditional way to celebrate the finished build and toast the birth of a new printer, so who am I to argue with that?" David says, laughing. "We've started finding our way around simple 3D programs like Google SketchUp and Blender, and I've seen several impressive models that we'll line up for printing. There's a miniature version of our building, cuff links for emergency meeting use, and a cube made out of arrow-shaped cursors. We're quite excited about a more code-based approach to creating 3D models too: programs like OpenSCAD make it possible to easily create complex geometric shapes like spirals and fractal-like forms.

For Redweb, it's the journey that's important, especially towards innovation. "It's going to be very experimental but we'll learn a lot along the way," David says. "Our staff are very creative and love a bit of problem solving... I think it's a fabulous time to see what this new technology can do!"

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Got an opinion on what the future has in store for 3D printing? Discuss this and more with us online

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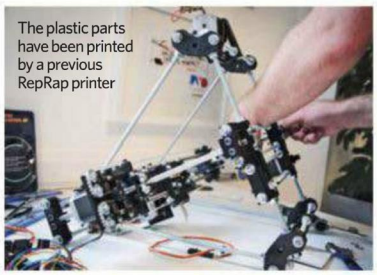
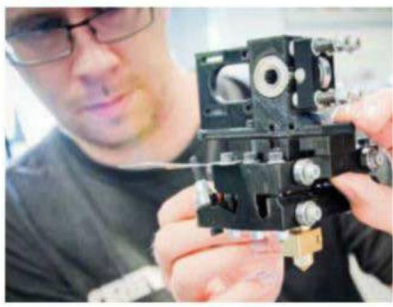
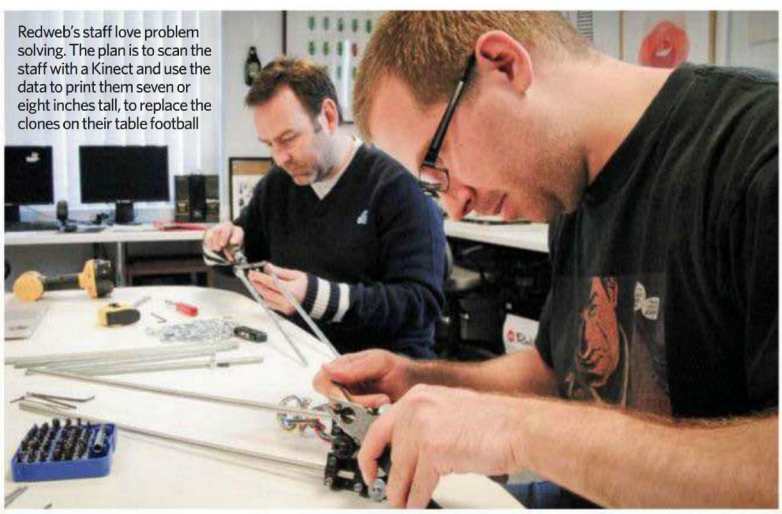


The plastic parts have been printed by a previous RepRap printer

The Redweb team follows the RepRap instructions for the self-build





Redweb's staff love problem solving. The plan is to scan the staff with a Kinect and use the data to print them seven or eight inches tall, to replace the clones on their table football

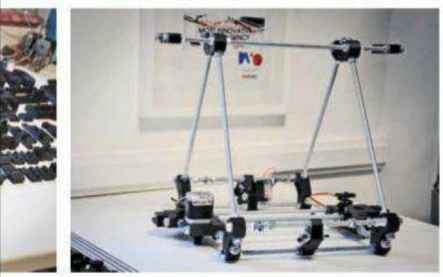
All images ©Redweb Ltd

> "It's often more about the journey than the final destination" **David Burton,** head of innovation, Redweb

## Build in progress

**The Innovation Lab at Redweb is currently mid-build on a RepRap Mendel Premier Axis 2.1 3D printer**

"We bought it in kit form from RepRap Central [that] gave us plenty of advice on which printer would be best for our needs," says David. "The Axis is proven to perform day after day with very little maintenance, so it's well suited to getting lots of use from all our staff and friends. When it's complete it will weigh 15.5 lbs, sit 20 x 16 x 14 inches, and print with ABS plastic filament, laying down 0.012-inch thick layers."



# Inspired 3D printing

## David reveals some of the projects that have inspired Redweb:

**There are lots of cool models out there that have been printed, and several beautiful services that add an extra layer of meaning to the printed objects, including:**

- Miniature Moments (http://miniaturemoments.com) is a service that takes your photos and prints them out in 3D so that the light shines through them. The effect is much the same as a photonegative.
- The Light Poem (www.shapeways.com/creator/lightpoem) lets you add your own poem as text and prints it out as a tealight holder

But I think projects that really stand out are those that have a social responsibility side to them. In Scotland, 3D printing was used by the NHS to help cut costs and save precious time in complicated bone surgery by producing physical replicas of what the surgeons would face during operations. There's also Project Shelter, where MakerBot Industries appealed for printer owners to print out new shells for hermit crabs to address shell shortages in the wild.

Masterpiece

# Re-creating memories in 3D

## 'It's going to rain' is Denis Lebedev's beautiful render of how he remembers the Russian landscape

**Denis Lebedev** http://lebedev.cgsociety.org

**Moscow-based 3D artist Denis Lebedev has been fascinated by 3D since early 2009.** His latest portfolio piece is the result of a self-imposed push to make the most complicated scene he'd yet attempted. "The most difficult [thing] to create was the virgin soil," Denis says. "I tried a lot of options, but the result didn't impress me... I had to try and try again [until] I got a nice-looking result."

We love the nostalgic feel of this image,which was inspired by childhood memories. "I tried to create the feeling that you're standing on the field, and I wanted to introduce dynamics in the static picture, so I chose a lens with a focal length [of] 22mm to achieve a distortion," he explains. "The lighting is very simple: there is a VRaySun and a simple Sky light – that's all. The colour scheme is more interesting: I imagined how it would be spectacular to contrast a blue-coloured tractor [with] a brown ploughed field, on the background of fading autumn grass. In post, I used several rendered elements to emphasise the details of virgin soil and ploughed land."

Denis used 3ds Max 2009, V-Ray, Photoshop, GrowFX and Multiscatter to create this masterpiece, which has won several awards on various CG community websites

# Blog watch

A guide to inspiring and informative blogs!

### Concept Vehicles

**Inspiration in fifth gear**

Concept Vehicles is the go-to for any artist seeking automotive inspiration. Filled with cars and trucks galore, there is something for everyone. Its sister blog sites, for instance Concept Robots (**www.conceptrobots.blogspot.co.uk**), are also well worth a look.

**www.conceptvehicles.blogspot.co.uk**

Do you have a favourite blog? Let us know!
**Facebook.com/3DArtistMagazine**

3D Sketchbook

# Use 3D for 2D painting

## Multi-talented artist Lee J Rouse uses 3ds Max with Photoshop to create picture-perfect concepts

**Lee J Rouse** www.leejrouse.com, http://ljrfolio.blogspot.co.uk

**Lee has been working in advertising and retouching since 1998, using CG as a tool for more efficient workflow.** "I began using 3ds Max about five years ago, after using other software like CINEMA 4D and Bryce," Lee explains. "3ds Max was easy to pick up, and the online community has been a great asset if help and advice is needed."

We love how Lee uses 3D in 2D image creation to create rough sketches for perfect perspective and lighting. "I render out a wireframe, object ID, shadow, reflection passes, and begin constructing the image in Photoshop using elements of photography and digital painting." Lee finds 3D makes concept work much quicker and more convenient for clients.

While Lee doesn't claim to be a Max expert, he found the software easy to pick up and implement

### Lee shares some top tips

Coming from a retouching and photographic background I try to use photographic elements as much as possible, be it for textures in 3D, or compositing elements in Photoshop... My most powerful method is the use of custom brushes in Photoshop... they have a huge range from hair and skin to rust and clouds – anything that [gets] the job done!

## Free 3D Resources

# Let Pixar inspire you

Learn from an Oscar-nominated artist in this free podcast

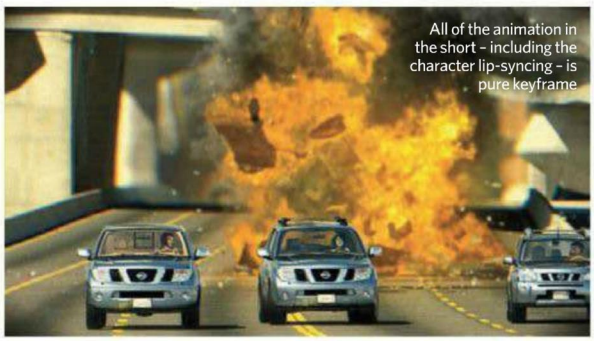
## The Animation Mentor *What Inspires You* podcast series

**Web:** www.animationmentor.com/campaign/podcast/enrico-casarosa

Enrico Casarosa is the Oscar-nominated writer and director of Pixar's beautiful short film 'La Luna', and in this free podcast he shares the secrets behind developing such a project and leading a team of animators to its conclusion, covering topics such as taking inspiration from childhood memories and the practicalities of motivating colleagues. For artists working in this field, there are more podcasts on the Animation Mentor website as well as webinars, eBooks and useful tips and techniques.

ANIMATION MENTOR
The Online Animation School ®

The podcast covers techniques to turn an idea into a finished animation project as part of the *What Inspires You* series



All of the animation in the short – including the character lip-syncing – is pure keyframe

*behind the scenes*

# Cut to The Chase

## It started as a joke, but two years of late nights, long weekends and focused determination saw the completion of short 3D film 'The Chase'

**Philippe Gamer** http://thechase.fr

**When Philippe Gamer first proposed a 3D car chase to his animation studio Space Patrol, he had no idea where the concept would take them.** "It started as a joke... and it soon became a long and lonely [path]," he says.

"'No compromise' were the key words," Gamer asserts, describing how he made the team start again on the design for the desert three times because he was not completely happy. "There was no client, and I believe I was worse than any client I've met." There were also problems to face including a distortion phenomenon known as 'big displacement': "The greater the distance from the center of the world, the more it [distorts] objects. In our case, the cars are moving over [much larger] distances, so we had to deal with weird modelling behaviour."

But despite challenges along the way, 'The Chase' has received a positive response. "I've been very surprised," says Gamer, who has already started work on his next project.

*Artist spotlight*

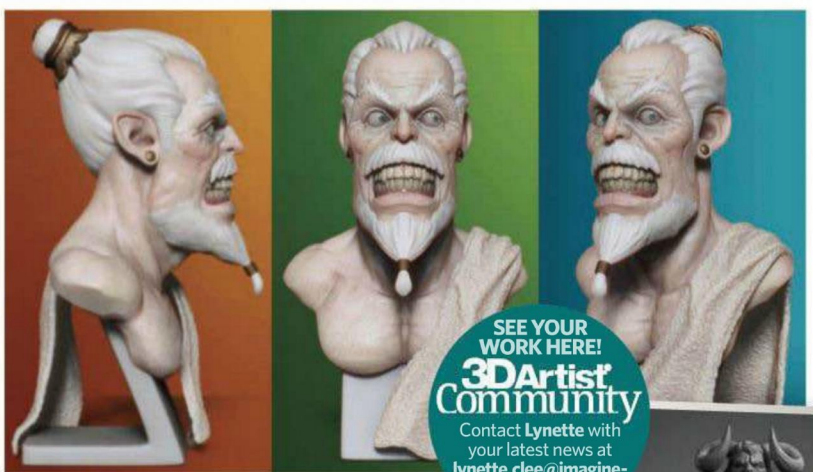
# Character building

## Moving from traditional to digital mediums, Sung Woong Kim has brought his love of character modelling to videogame creation

**Sung Woong Kim** http://general-kim.cghub.com

**Growing up in South Korea, Sung Woong Kim made characters out of clay before he discovered computer graphics, but it was only after one of his designs won a prize in an international competition that he began to seriously consider a path as a professional artist.** "I participated in the character competition [for the] Dong-A LG International Festival of Comics and Animation in 2006, and [placed in third]," he says. It was after this that Sung Woong decided to pursue a fresh career in character design. Now working for game developer SmileGate Inc, he is currently focusing on an exciting new internal project. He reveals: "We are not working for clients, but developing our own MMORPG."

Using mostly 3ds Max and ZBrush, Sung Woong says it is the tiny details of his characters that he enjoys concepting and rendering the most. He finally explains: "I focus on expressing the texture and colours to make it realistic, because it is the most attractive part of creating a character from the imagination."



3ds Max and ZBrush are Sung Woong's engines of choice for his dynamic characters, focusing on the details of texture and colour

SEE YOUR WORK HERE!
3DArtist Community
Contact **Lynette** with your latest news at **lynette.clee@imagine-publishing.co.uk**

# New digital mag web portal

## Find your favourite magazines all in one place at GreatDigitalMags.com

**GreatDigitalMags.com is the latest website launch from UK publisher Imagine Publishing.** The site houses direct links to the digital editions of the company's top-quality magazines.

Every title – from *3D Artist* and *Advanced Photoshop*, to *How It Works* and *GamesTM* – will appear on the web portal, with direct links to Zinio and iTunes. So, no matter what platform you're using, there's a digital magazine for you.

For more information, visit: www.greatdigitalmags.com

## What's in next issue

Discover how to stylise concepts in 3D

Issue 43: on sale 20 June 2012

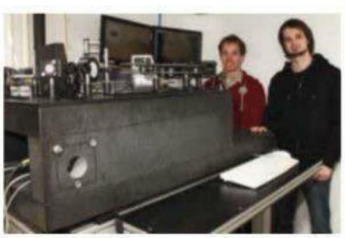
To buy your copy, visit www.imagineshop.co.uk

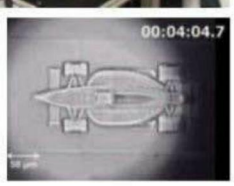
Inspiration corner

# Record-breaking technology

Engineers and chemists in Vienna have developed a nano-scale 3D printer that could prove to revolutionise the world of medicine and beyond

**Vienna University of Technology** www.tuwien.ac.at/en/news/news_detail/article/7444






This unique technology has the potential for being used in medical operations that require a large amount of minute detail

**Researchers at the Vienna University of Technology have developed an AMT capable of printing on a nanometre scale more quickly than any previously built.** It's so fast, in fact, it's broken a world record. "The feature resolution is as low as 100 nanometres, [while] common techniques have 25 mikrometres... Using this technique, real 3D structures can be created," says Jan Torgersen, one of the researchers at the university.

"The technique is precise enough to fabricate structures at details resembling biological conditions precisely. The parts can be used for cell experiments and for growing artificial biological tissue," Jan explains, describing what he hopes is the future for the printer.

# Free 3DResources

## Hone your sculpting skills

Take advantage of a wealth of resources from The Gnomon Workshop website

## Free ZBrush tutorials

**Web:** http://www.thegnomonworkshop.com/store/category/168/free-zbrush-tutorials

The selection of free ZBrush tutorials from The Gnomon Workshop is just one of the impressive categories of assets available from this website. Once you have registered for an account you can download tutorials to guide you through generating displacements, lighting, mastering multi map exporters and lots more. Ever wanted to know how to sculpt a zombie face properly? It's all here.

The free tutorials range from explanations of key tools to walkthroughs of the best methods for rendering specific media

3DArtistonline.com

Create your gallery, browse the artwork, chat with artists and get tips for improving your skills at

www.3dartistonline.com

# The team loves

**Get in touch!**
Tell us about your favourite design-related purchases
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**or Twitter**
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## Product of the month

### Paper

» **FiftyThree**
**Stockist:** www.fiftythree.com/paper
**Price:** Free. Additional tools from $1.99 US*
**We say:** Sketch, write and draw on the move with Paper, a beautifully simple – and free – iPad app that's been designed with a gesture-based interface to work the way that you think, without the need for fiddly buttons and menus. Blend pencils, write messages with ink, create storyboards and presentations, or add a wash of colour to your drawings – and in Retina Resolution, too! The canvas is 2,038 x 1,536, giving you plenty of pixels to play with, and when you're done you can instantly share through Tumblr, Facebook and Twitter A.

### B Pyrus

» **TrekStor**
**Stockist:** www.trekstor.de
**Price:** £60
**We say:** A new e-book reader has hit the market: Pyrus features Digital Ink tech, offering paper-like realism on a six-inch, stain-free display screen. Its impressive week-long battery life and 4GB internal memory (suitable for around 4,000 books) make it a powerful – albeit lightweight – gadget for those on the go. It's compatible with a wide range of e-book formats, from the popular to the obscure, and the best bit: it's affordable!

### C Stickems

» **Stickems Ltd**
**Stockist:** www.stickems.co.uk
**Price:** From £3
**We say:** Touch-screen tech, while marvellous, plays havoc with shiny screens. Stay dust and fingerprint free in style with Stickems, the tiny cloths that have been designed for up to 10,000 uses. They even have a self-cling backing to keep them tucked away for easy access. The range of designs is ever-growing, with new artists being added to the mix to help you stylishly remove oil, grease and make-up from prized screens.

### D The Vibe

» **Shapeways**
**Stockist:** www.shapeways.com/creator/thevibe
**Price:** $25 US
**We say:** Shapeways 3D prints your sounds for a truly personal touch. Expanding on the free SoundCloud app, which lets anyone upload and share music and audio through their personal online account, The Vibe now enables users to have their favourite sounds 3D printed as iPhone cases. Simply connect to SoundCloud, choose an MP3 and select the waveform to integrate into a unique protective case!

### E The Hand of the Graphic Designer

» **Moleskine**
**Stockist:** http://store.moleskine.com/en
**Price:** £45
**We say:** Celebrate the beauty of freehand sketches – before designs reach the computer – with this stunning red Moleskine folio packed with 120 pages for all your doodles. What makes this book so special is 367 pages of original sketches by 108 internationally renowned graphic designers, giving artists a unique insight into a vast array of inspiration. Draw alongside the masters!

### F Ostrich Pillow

» **Kawaguran Ganjavian**
**Stockist:** www.studio-kg.com/ostrich
**Price:** On request
**We say:** Power-napping at its best, this incredible invention was inspired by the modern-day design studio environment when sometimes all you need to do is bury your head in a jumper and get a bit of sleep before carrying on with 'that deadline'. While the Ostrich isn't currently available on the market, it can be built on request, and features a soothing interior lining that will perfectly shelter your head and hands for a quick kip.

* The US $ price is an approximate conversion, which was correct at the time of publication.

# Add Vue 10 to Your Skillset

## Learn this essential tool with the FREE Personal Learning Edition

Vue image by Drea Horvath

Vue image by Maciej Sikora

Vue image by Brindza Tivadar

Vue image by Daniel Respaud

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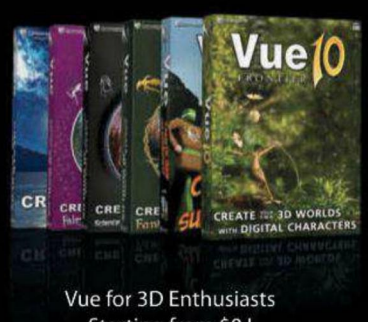
www.Vue10.com

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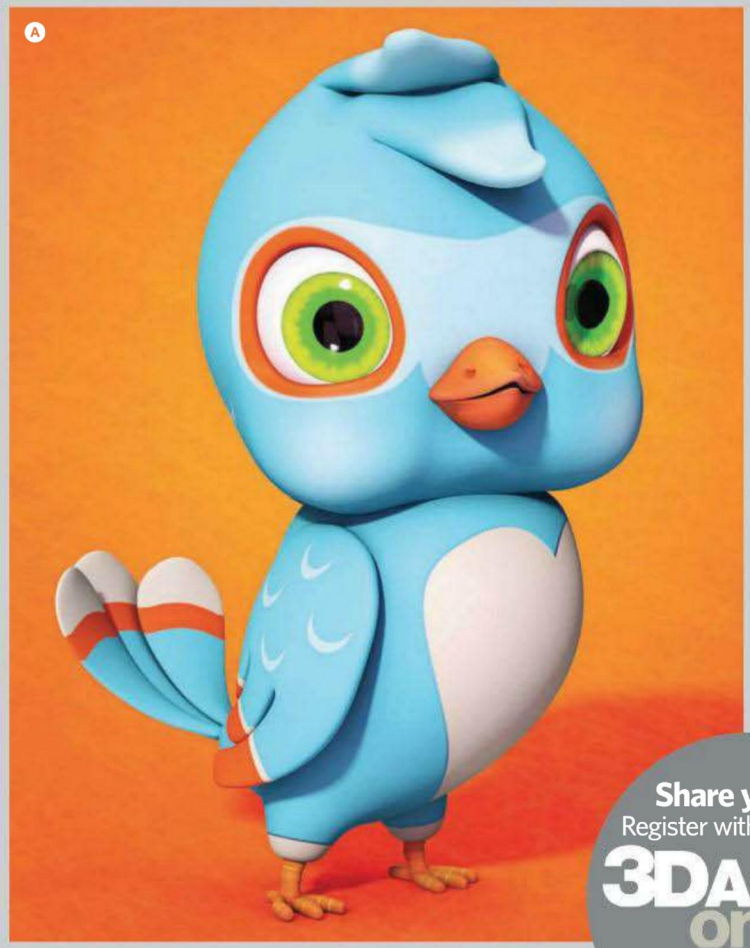

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www.3dartistonline.com
to view the art and chat to the artists

# Pictures of the week

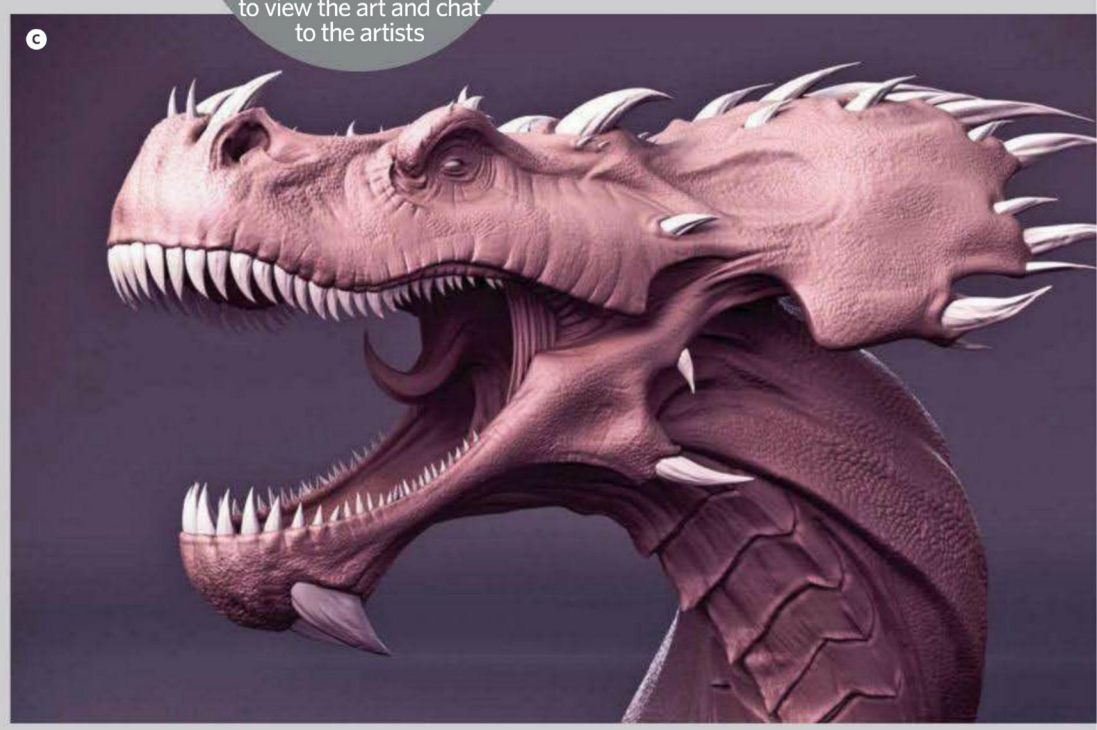
## ENJOY THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

**A** Teodoru Badiu
» **Toby Blue Bird**
**Teodoru says:** "*Tobi Blue* was born to be the companion of an original character design named *Pinocchio*"
**We say:** "A simple concept brought to life through an excellent pose and careful attention to facial features"

**B** Hao La
» **Rooftop Terrace**
**Hao says:** "The goal was to turn the space into an attractive, oasis-like environment [to escape] the concrete jungle of the city"
**We say:** "Hao La has truly transformed this penthouse!"

**C** Thomas Newbury
» **Dragon Head Concept**
**Thomas says:** ""This was my very first attempt at a finished model in ZBrush. I now primarily work in ZBrush [for] organic characters"
**We say:** "This is very impressive for a first attempt!"

**D** Christopher Ryan
» **Vosi**
**Christopher says:** "[This is a] concept for a modular furniture system"
**We say:** "We love the simplicity of this bold, sleek shelving design"



**Sketchbook giveaway!**
The four artists awarded 'Picture of the Week' each get a 3DTotal sketchbook, courtesy of **www.3dtotal.com**

# Picture ofthe month

## Edward Domingo A. Castro
» **Flat ShekO**
**Edward says:** "*Flat ShekO* is a three-storey flat situated in the southern part of Hong Kong. The image was created using SketchUp for modelling, plus 3ds Max, V-Ray and Photoshop"
**We say:** "The camera angle has been chosen wisely to showcase the apartment's modern lines"

## Dave De Kerf
» **Dogroses**
**Dave says:** "I just love creating nature shots using Vue while trying to achieve realism! I focused on creating the atmosphere and fine-tuning materials for perfect interaction"
**We say:** "So good, we can smell the sweet fragrance of these petals from here!"

## Rikardo Matos
» **Porsche 993**
**Rikardo says:** "Model designed in SketchUp, rendered in KeyShot [and] edited in Lightroom"
**We say:** "We love seeing the possibilities of modelling in SketchUp! This is a fantastic example, rendered beautifully in a studio environment"

## Cesc Grané
» **Yōkai H**
**Cesc says:** "[These] characters [are] inspired by the Yōkai: in their habitat, with their unique look and own abilities"
**We say:** "Cesc has added several new illustrations to his portfolio, including these quirky guys"

## Get in touch...

3dartist@imagine-publishing.co.uk

# Have your say

**Write, email or use the website forums to get in touch about the magazine, your problems or triumphs**

## Top tweets

### Get involved... @3DArtist

**@Luxology** Nice tutorial in the latest @3DArtist on character #animation in #modo601. See how the 'Dragon Tamer' was created: bit.ly/Hmv8ir.

**@tom7taylor** @3DArtist As promised, I have uploaded images of my work to your website. Thank you. Here is a taste: pic.twitter.com/48GtVjxS.

**@TJunkers** "@3DArtist: You can now buy digital editions of **3DArtist** on Apple Newsstand and Zinio" My subscription will start tomorrow!

**@Shwartini** @3DArtist Another mag packed with gorgeous visuals and inspiration! A little heavy on max and modo, mind.

**@acjwalker** Anyone else get the new @3DArtist magazine today? Good one for arch vis and free 3D trees and HDRIs.

**@Azhreicb** Wife forgot to tell me my @3DArtist mag turned up today. Just discovered it, so there goes my plans for an early night!

## On the Wall

### Facebook.com/ 3DArtistMagazine

**Klaire Hodgson** [Behind the scenes with Aardman's *The Pirates!*] This is amazing. I love [the] set!

**Nicole Abney** [On George Krallis' image of the week: *Mushroom House*] LOVE this, nice modelling and amazing textures!

**Carlos Ortega Elizalde** [On 3D software] I switched to Mudbox as [my] primary sculpting app – the learning curve took no time and I felt it better integrated with Maya (and the texturing capabilities are great too – in some cases I don't even have to switch to P Shop). Along with Topogun, it has improved my workflow in a big way.

digital-tutors www.digitaltutors.com is a learning resource site boasting a library of 17,000 video-based CG lessons.

**THE AUTHOR OF THIS ISSUE'S STAR LETTER WINS A MONTH'S FREE SUBSCRIPTION TO DIGITAL-TUTORS WORTH $45**

Star letter

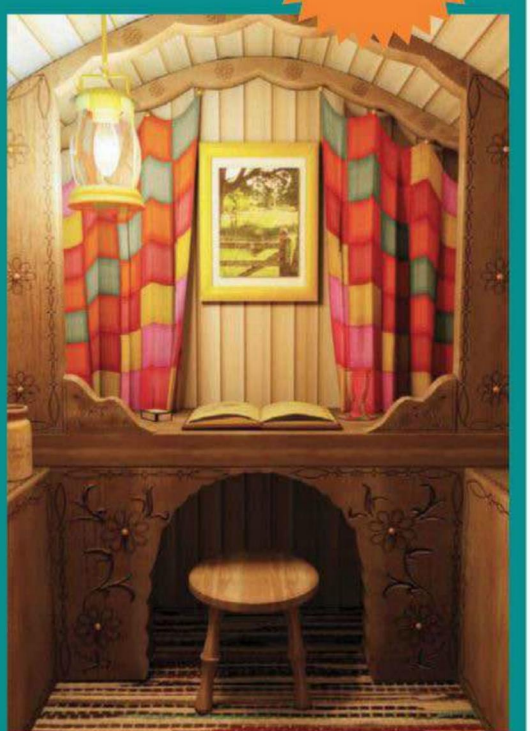
## Sage advice

I would like to share my latest piece with you. It is called *Gypsy Caravan* and was created in 3ds Max.

I'm a single mother and a mature student at the ripe old [age of 31]. It took me until last year to finally take the plunge and pursue my dream of becoming a digital creative. Enrolling on a course entitled The Art of Games Design at the University of Cumbria, I found myself surrounded by people nearly half my age. To say it was an intimidating experience would be an understatement, but after a year of hard work I am really beginning to see myself as the artist I always wanted to be.

My message to others would be that it's never too late to begin pursuing your dreams and living the life you want. I hope this is just the beginning of a long and exciting journey for me.

**Laura Woodhouse, via email**



*Very good advice, Laura. We are firm believers that age should never be a factor when pursuing your dreams. Although it takes a significant amount of courage to change your career path, the rewards certainly outweigh the difficulties. Speaking of which, we'd like to award you with the Star Letter this issue. The reason? For leaving your comfort zone behind and not looking back. We hope the one-month subscription to Digital-Tutors will help you on your way.*

Lech's three-part tutorial series on arch vis concludes this issue

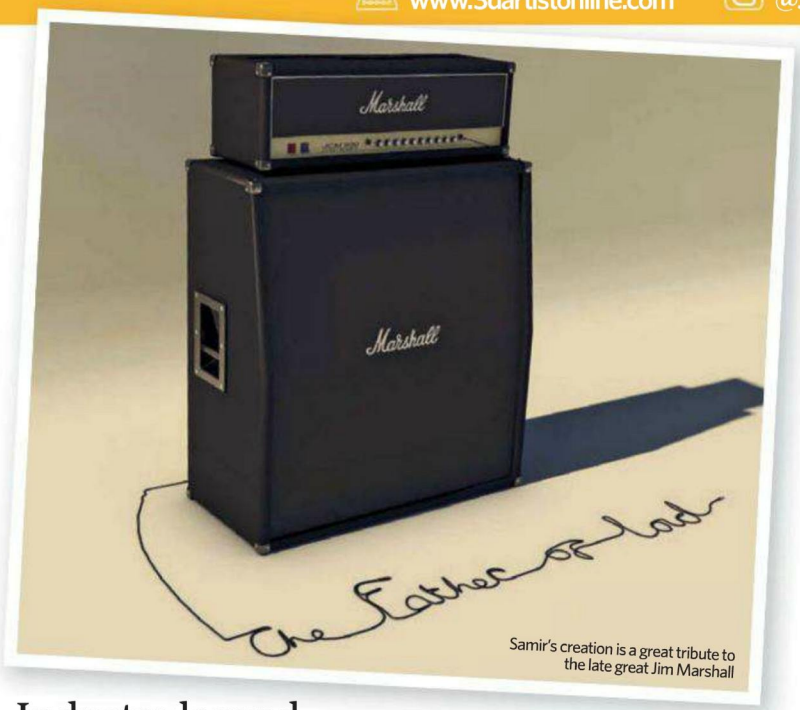
## Cover complaint

[@3DArtist issue 40] Quite possibly the most misleading issue of a magazine I've ever bought... nothing about the cover image at all.

**Dave Buckley, via Twitter**

*Hi Dave, thanks for your message. We're sorry you were disappointed with issue 40 of **3D Artist**. Whenever we have a 'create the cover' tutorial inside the mag, we always ensure it's clearly labelled as such on the front of the magazine. In this particular case, Pawel's image was used for representational purposes to demonstrate the tutorial content inside, which is the first of a three-part guide to building a residential property from scratch (starting on page 46). If you have any further questions, please don't hesitate to contact us.*

**SAVE MONEY & SUBSCRIBE!** Turn to page 90 for details



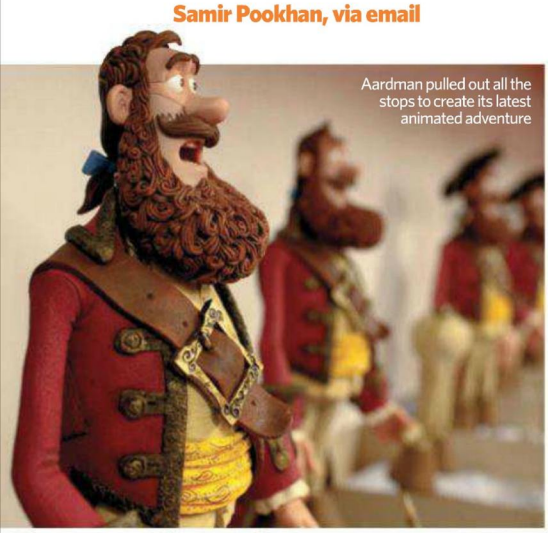
Samir's creation is a great tribute to the late great Jim Marshall

## Industry legend

I'm a long-time reader, but first-time writer. I created this image as a tribute to Jim 'The Father of Loud' Marshall. He created the best rock 'n' roll sound and his amps are used by all the best rock bands. Can you print it?

**Samir Pookhan, via email**

*Your wish is our command, Samir! Jim Marshall and his products made a massive impact on the music industry, not only in terms of sound but also as an iconic product. No doubt many will be mourning the loss of this talented and all-round great guy.*


Aardman pulled out all the stops to create its latest animated adventure

## 3D-printed pirates

[I have just read the 'behind the scenes' with Aardman's *The Pirates!* story on the 3DArtist website.] This is very cool, it's great to see 3D printers getting closer to the detail they all claim to have!

I'm a bit on the fence with this process for a stop-motion animated film, though. Modelling and then 3D printing... it's kind of cheating. I mean, you've eliminated at least half of the hands-on part. Why not just keep the models in the computer and animate them there? What's next, computer-controlled robotic arms to move each piece?

Sorry... it's still cool, just doesn't seem quite right.

**Chris, via 3dartistonline.com**

*Hi Chris, this blog entry offers just a glimpse at the making of the film – I think when you see the film, and if you get chance to check out the feature in full, you'll quickly realise that 3D printing isn't a method of cheating on something of this scale.*

*Bear in mind that on a stop-motion film of this size, animators will shoot on average of five and a half seconds a week. We don't see CG and 3D printing as cheating on* The Pirates!*; it's simply been used tastefully to help create a classic production on a ridiculously huge scale.*

*PS: The film is absolutely incredible!*

# You tell us

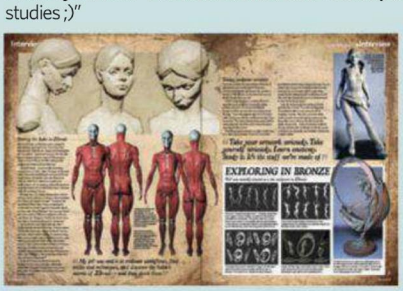
## If you knew you were going to be a 3D artist, what would you have done differently at school?

### Facebook.com/3DArtistMagazine

**Andrew Hickinbottom:** "Anything other than what I actually did! I did three years of graphic design, which was a complete waste of time. Wished I did animation, web design, illustration (especially this), fine art or sculpture instead"

**John Stopforth:** "How could I, there was no college for 3D when I was a lad :) I'd say to all school age students: ART ART ART! Get a great portfolio together and learn the basic skills of composition and thumbnailing"

**Andrzej Kuziola:** "I would focus more on anatomy in my medical studies ;)"



We'd all love to brush up on our anatomy skills! Check out our interview with sculptor and teacher Ryan Kingslien in issue 34 and get inspired by his commitment to learning all there is to know about the human body.

**Jon Laplante:** "Most jobs in this field don't require a degree, they only care about your portfolio. I knew this, so I opted for a technical college so I wouldn't have any debt and yet I could get a jumpstart on what software to use. The only thing I would do differently is to not get married... Shh, don't tell my wife – babe, if you ARE reading this, I love you! And I love you too **3D Artist** magazine... In a brotherly kinda way"

**Moni Harrion:** "If tutorials we have now were readily available six years ago, I would have never gone to art school and be stuck with 120k in student loans. School is a waste of time and money now"

**Shane Graves:** "Yes, I agree, I would have def taken anatomy, and would loved to have [chosen] sculpting"

**Wojciech Portnicki:** "I'd never go study to be a librarian. I'd do graphic design. Or probably [go to the] USA to study 3D specifically"

**JOIN THE DISCUSSION:** Facebook.com/3DArtistMagazine Twitter: @3DArtist

**3D Artist magazine:** "Isn't hindsight wonderful? :)"

**David Whitaker:** "Really, I would have [taken] classes more aimed at games dev – but I only sat down and thought "I really wanna make these" after 14 years of being a gamer from the age of four, lol. But yeah, I would have got myself more prepared by taking things that would have really helped me become one with the games industry, but I didn't think it'd interest me until about a year ago"

### @3DArtist

**@liamkirkman:** "Put more effort into art work. And possibly take an art foundation degree before my main animation course"

**@AndyJamesAdams:** "Spent more time with traditional art forms"

**@jiveaces:** "Learn 3D artistry earlier?"

**@itschriswebb:** "[Study] 3D *at* school!"

Find our back issues on Zinio (http://gb.zinio.com/3DArtistsub) and the Apple Newsstand (http://itunes.apple.com/app/id470897237)

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# 3D ART APPS

## Don't be constrained by the desktop, take your 3D models, scenes and ideas with you

**On the face of it, producing 3D on a mobile device, like a phone or tablet, seems fairly ambitious.** The iOS devices have poor and limited file systems, Android devices offer a more fragmented marketplace, there's a lack of onboard RAM, GPU processing abilities are weak and mobile CPUs, even dual or quad-core ones, are not comparable to desktops. And yet the mobile device offers the perfect way to conceive ideas, showcase models or scenes and engage viewers with your content. There's nothing quite like showcasing content on a mobile device. The apps featured here are designed to do just that. The developers have pushed the limits of what you thought could be achieved on a mobile device to set the world of 3D development free from the confines of the desktop. So let's see how you can model, sculpt, develop, create and present 3D work on the iOS and Android formats.

Words by **Duncan Evans**

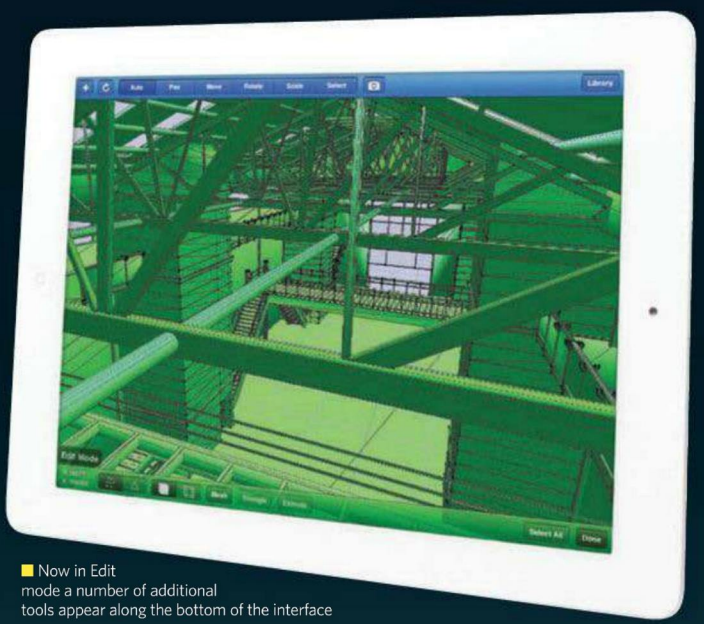
**Price:** £9.99 **Format:** All iPads running iOS 3.2 or later
**Developer:** Michael L Farrell

# Verto Studio 3D

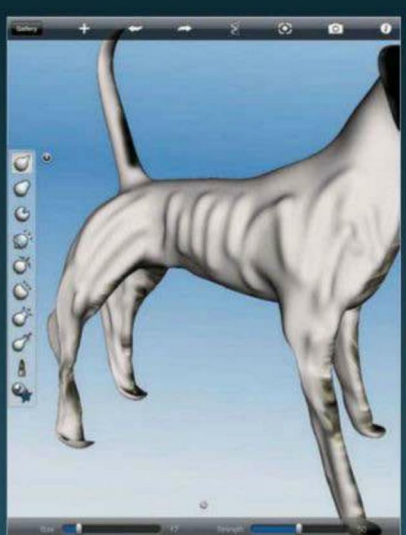
## A modelling package for all

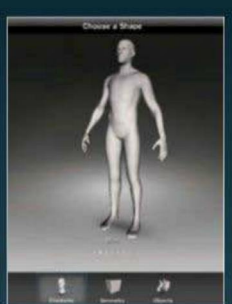
One of the more comprehensive and capable modelling packages, Verto Studio 3D makes good use of the iPad's larger screen with a clean and uncluttered interface. You can start from scratch, using primitives and then extruding and subdividing polygons, or importing an OBJ file through iTunes. There are two viewing modes: Perspective and Ortho plus some fixed camera positions. The fixed cameras are okay if it's a small model and you're on the outside, not so much if it's a scene you need to get into. Here the Ortho view is the one to use, but it's still not as easy as it should be. In terms of object creation there's a standard set of primitives, a new basic light function and even a heightfield terrain generator. There's also a 3D sketch tool, a material editor and texture mapping.

## Overall Rating ★★★★★



■ Now in Edit mode a number of additional tools appear along the bottom of the interface





■ Start by selecting a previously made but fairly basic figure, or a geometric shape, that you can go wild with

■ Using one of the tools to add extra detail like ribs on this mutant dog. There's a range of tools with adjustable sizes

**Price:** Free **Format:** iPad running iOS 4.3 or later **Developer:** Autodesk

# 123D Sculpt

## Sculpting and painting

This is currently free with the option to purchase extra models. You can start with a range of shapes like a head, man, dog, bird and animals, or try something more basic with ellipsoid, torus, sphere, square and so on. There is a selection of tools to inflate, deflate, sculpt, pull and poke at the greyscale object. There's a clever system of viewing that has really been thought out by Autodesk. Finger movements off the object rotate, zoom and pan the view. Finger touches on the object are used to sculpt it. The fun comes with either painting with single colours or using the Texture Overlay function. Here you transfer from the texture sample onto the object. There are things like faces, fur, skin and other assorted textures supplied. Completed images can be saved as PNGs with transparency. The app lacks an Export Mesh function but is otherwise very capable.

## Overall Rating ★★★★★

**Price:** £2.99 **Format:** iPad, iPhone, iPod touch. Requires iOS 5.0 or later
**Developer:** Fabio Policarpo

# iTracer HD

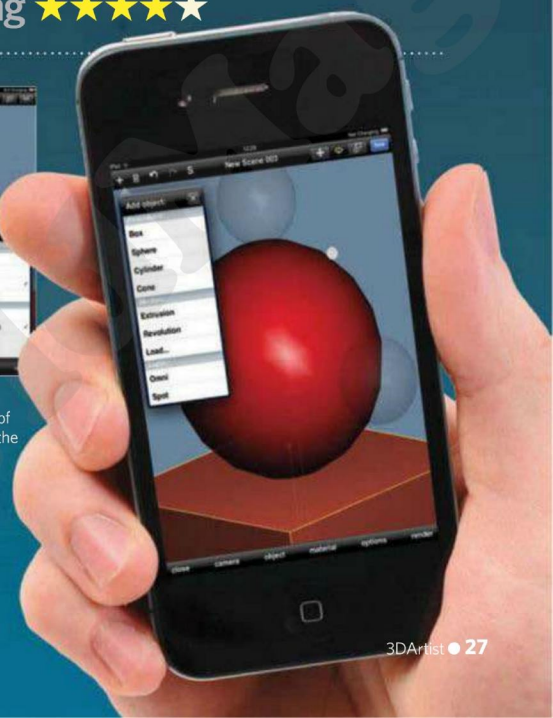
## Building and ray tracing

Although iTracer HD can import 3DS models via the iTunes interface, there's a limit on how complex they are and how well they are implemented. Even better is the ability to create numerous primitives, assign materials and lights and then render out the results. The faster the device, the quicker the rendering that can be saved to the photo roll. There's also a complementary app for the Mac where you can send your scene, from iTracer, for it to be rendered. Needless to say this is much faster. The camera controls are fairly intuitive so moving around the scene, which tends to be fairly simply anyway, is easy. There are two different types of lights – Spot and Omni – that create diffuse and specular lighting with accurately cast shadows. However, the choice of materials is very basic, being little more than different types of reflective surfaces. Overall this is good for setting out simple scenes, though not as good as Verto Studio 3D.

## Overall Rating ★★★★★

■ Setting the final image resolution and the quality of the rendering determines the time it takes to render out

■ A new light has been added to this scene and the surface of the transparent orb changed to a reflective one



**Price:** £1.99 **Format:** iPhone 3GS/4/4S, iPod touch 3rd gen/4th gen, iPad. Requires iOS 5.0 or later **Developer:** Javier Edo Meseguer

# Forger

## Import and sculpt meshes

Forger has one immediate advantage over 123D Sculpt from Autodesk, and that's the ability to import and export OBJ files. It also offers a few premade sculpts to start with, but only a head, full figure and a couple of primitives. A nice touch is that separate elements can have their visibility toggled on and off to aid viewing and specific areas can be masked. The viewing system itself is up there with the one from Autodesk. The tools consist of a brush with various types of tip. These perform functions like flatten, move, smooth, punch, inflate, layer, mask and also paint. There's also a single light position that can be moved around. It sounds good, but it appears tools can stop working for no apparent reason or work in one area but not another.

**Overall Rating** ★★★★★

■ The range of tool types that all have different functions related to adjusting and sculpting the figure

■ Reduce the brush size so you can make small nibbling edits of the sculpt such as nostrils

■ Basic lighting shines off the surfaces, unless you turn it off completely

**Price:** Free and £4.99 versions **Format:** iPhone, iPod touch, iPad running iOS 3.2 or later **Developer:** CrateSoft LLC

# iDough

## Sculpt like it was dough

With a great big ball in front of you, the word ZBrush springs immediately to mind. Unfortunately this means there are no built-in, basic sculpts to start from like the other rival apps. Still, there are brushes to push, pull, smooth, pinch, spread and flatten. There's a material colour you can add, and while there is some specular light you can tinker with, there's nothing like lighting or textures, so it's sculpting only. You can mirror your sculpting or turn this off in favour of individual features. Movement and viewing are very intuitive and there's a 30-level Undo function to go back. The only other functions are to email the results as an OBJ mesh, clone the sculpt so you can make versions of it or delete it. The tools are fine but the pickup is a little iffy so sometimes you flick the sculpt rather than edit it.

**Overall Rating** ★★★★★

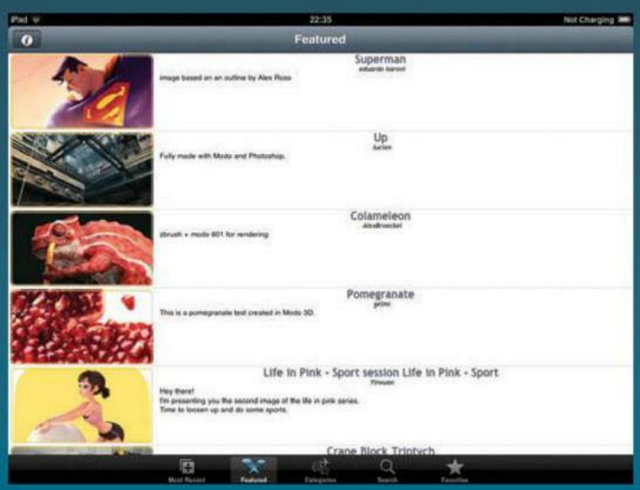
**Price:** Free **Format:** iPhone, iPod touch, iPad running iOS 3.2 or later **Developer:** Luxology LLC

# LuxGallery

## Mobile guide to modo graphics

The world of modo is an expanding one, with the recent 601 release adding a massive number of new features. What better way then than to see what the modo artists have been up to with this Luxology viewing app? Good idea on the iPhone, hardly an essential on an iPad, it offers the most recent uploads, then a set of options. These include featured images, categories, a search engine and favourites that you've saved. There are 29 categories covering everything from cars and people to more bizarre ones like signs and forensic. The featured selections are those that the people at Luxology rate so it's usually worth a browse there. Tapping on the Info icon brings up some words about the work from the author though annoyingly this can be right in the middle of the image.

**Overall Rating** ★★★★★




■ Some of the featured images are outstanding and others are more like test renders. Tap on one to load

■ Pan and zoom with your fingers to see the details and nicely lit models

■ Load your Rhino models from a variety of sources then see them listed here

**Price:** £2.49 **Format:** iPhone, iPod touch, iPad running iOS 3.2 or later **Developer:** Robert McNeel & Associates

# iRhino 3D View native Rhino files

If you're a fan of the Rhino modelling program and want a way to showcase your files to potential clients, there's no better way than doing it mobile, either on the iPad or iPhone. This viewer for Rhino files provides a number of formats to have a look at initially – once downloaded – and also let's you add your own via iTunes, email attachments, from Google Docs or by loading directly from websites. Image views can be saved for notes or email. The viewing system consists of one finger for 3D rotation and two fingers for panning and zooming. There's an automatic light source that makes any shiny metal surfaces look very nice with specular highlights. You can also get information on the size and polygon count of the model. The nicest feature though is the ability to toggle between the standard view and the red-cyan anaglyph 3D view, to really make the model look 3D.

## Overall Rating ★★★★★

# A quick guide to iRhino

Discover how to use the app to load and view Rhino models on the move

**01** Tap on the plus sign on the bottom left to add a model. You can add them from websites, Google Docs or Dropbox but the file must not be archived. Tap on Dropbox for example and enter your name and password. Tap on View Docs to see what's online.

**02** Navigate to the folder with your model file. Tap on it to select it and then tap on Add to models in the bottom right corner. The entry for it will now appear in the list of models on the front page. Tap on the model listing to start loading it into the internal library.

**03** Use two-finger pinch gestures to zoom and pan and one finger to rotate the view. Tap on the image once to bring up menu options. Tap on the 1 symbol to switch to anaglyph 3D mode, on the send icon to save the image as a

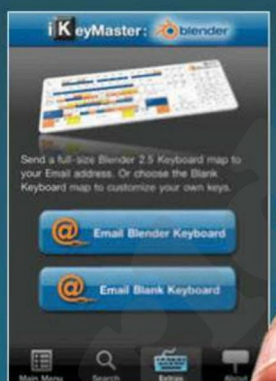
**Price:** £1.49 (iOS), £1.21 (Android) **Format:** iPhone, iPod touch, iPad running iOS 3.1 or later. Also, Android 1.6 or later **Developer:** John Lullie

# iKeyMaster: Blender 3D

## Key commands for Blender

Blender 3D is a great program, not least because it's free and offers an opportunity for getting into 3D for even the most cash-strapped enthusiast. However, it's not the easiest program to get to know, which is where the ungainly titled iKeyMaster: Blender3D comes in. This app contains all the key commands for version 2.5 of Blender and is designed to be on-hand while you work with the program. You can search for specific commands and shortcuts or browse the main menu for keys organised by category. These include subjects such as navigation, the most common keys, modelling, the node editor and rendering. Just tap on the category and browse through all the commands related to it. There are also links to Blender tutorials on YouTube to explain all the commands. Finally, the app will also send you a PDF of a keyboard map that can be printed out.

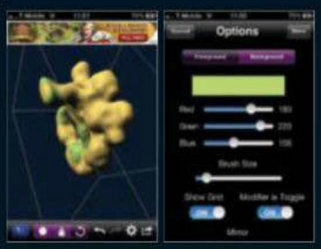
## Overall Rating ★★★★★




■ The app keeps on giving with a PDF of a full size keyboard map that can be sent to you by email

■ The main menu with each set of commands grouped together into logical categories

3DArtist
is now available on iPhone & iPad
Turn to page 72 for details

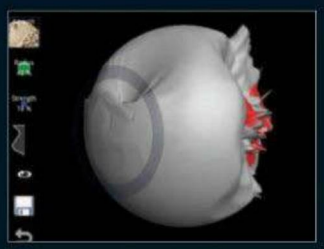


**Price:** £2.49 or Free (advert supported) **Format:** iPhone, iPod touch running iOS 3.0 or later **Developer:** Volutopia

## SculptMaster 3D

Less to do with sculpting and more like clay modelling. Slap the clay on, rotate the views and add colour or change the background. You can smooth areas out, refine the brush size, undo mistakes and add or remove from the creation. A hidden light source makes it look nice enough, but it's not the easiest thing to use on a phone. Export the finished model as an image. The paid version removes the ads, enables saving to a gallery and has an advanced eyedropper.

**Overall Rating** ★★★★★



**Price:** Free **Format:** Android 2.1 or later **Developer:** Fabrice Boyer

## TrueSculpt Virtual Sculpture

Finally, a ZBrush style sculptor for Android. This can mirror processes to speed things up and has a range of tools including Inflate, Draw, Grab, Noise, Flatten, Pinch, Smooth, Colourise and a dropper for picking up colour. Moving fingers away from the model rotates, pans and zooms, while doing it on the model paints or sculpts. The rotation and zooming is a bit rough and the sculpting lags a little even on a 1GHz Android device. It is able to export as OBJ though.

**Overall Rating** ★★★★★

**Price:** £1.99 (iOS), £1.24 (Android) **Format:** iPhone, iPod touch, iPad with iOS 4.0 and Android 2.0.1 **Developer:** William Steptoe

## Sketcher 3D

Import and export OBJ models or create your own scenes with a selection of primitives. You can clone and group objects and creating scenes is made easier with a gravity function to drop them into place. Control is awkward but the best feature is the ability to fly through the scene and record the video. For showcasing existing OBJ models it's good fun, but for creating scenes, it's clumsy and slow.

**Overall Rating** ★★★★★

# Sketch your ideas

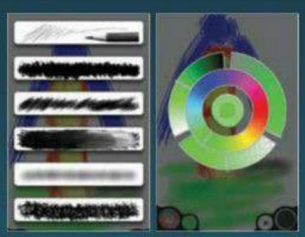
## Create concepts for 3D scenes

**Price:** £6.99 **Format:** iPad 2 and 3 with iOS 5.0 or later **Developer:** Adobe

## Adobe Photoshop Touch

Adobe has finally come out with a mobile photo editor that also links in to Adobe's new Creative Cloud storage system. Images can be loaded from there on the device, taken with the camera, loaded from Google and Facebook or created from scratch. Layers are supported as well as drawing tools, adjustments and special effects. There are great selection tools for drawing and sketching up ideas, though the interface is pretty awful.

**Overall Rating** ★★★★★



**Price:** £3.13 **Format:** Android 2.1 or later **Developer:** Sean Brakefield

## Infinite Painter

Natural media painting and sketching for your Android device only. There are multiple brushes covering pencil, paint splashes, chalks and the like, plus a simple navigation system. Images can be imported from the camera and gallery or created from scratch and completed images can be exported, resized, rotated or recoloured. There's a funky colour palette and easy control of the brushes means you can quickly start sketching or painting your ideas, just like ArtRage.

**Overall Rating** ★★★★★

**Price:** £0.69 **Format:** iPhone, iPod touch, iPad running iOS 3.2 or later **Developer:** Autodesk

## Fluid FX

While this is basically a fun app, it could give you some ideas with regards to fluid or volumetric effects. Load up a scene – 3D or your own photos – then play around with the various warping, fluid or particle effects. You can have up to ten multi-touch points, shoot fire from your fingers to create presets for combinations and output the fun to an external display. The effects are all based on those you would find in versions of Maya.

**Overall Rating** ★★★★★

**Price:** Various **Format:** iPhone, iPod touch running iOS 4.0 and Android 2.1 or later **Developer:** Autodesk

## Sketchbook Mobile

There are numerous versions of this painting and sketching app from Autodesk, across iOS and Android formats. It offers a pop-up rotating interface and the ability to paint with pencils, markers and felt tip pens. There's a flood fill option, a variety of texture brushes, smooth brushstroking and a mirroring function. The iOS versions offer saving to iCloud while the Android version recommends a fast 1GHz CPU and multiple layer system.

**Overall Rating** ★★★★★

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# Arch-vis

## Chris Kowal talks to Lynette Clee about creating immersive customer experiences through web-based interactive design

**The multi-talented Chris Kowal is a digital illustrator, 3D instructor and fine artist who revels in the opportunities that 3D offers to communicate with an audience.** While engaging with customers online has become an increasing challenge for many, with rich, visual media now the norm, for Chris it has paved the way for him to evolve from print, to web, to mobile platforms.

His latest masterpiece has taken six years' of experience realising all manner of projects, from the visualisation of tower developments to product illustrations, music videos and digital 3D maps. All this has led to creating something truly exceptional for his employer, MP Lighting. The 'Mill Project' is an incredible web-based, interactive, architectural project that showcases LED lighting solutions. Chris comments: "In the end, it's a tool designed to sell lights. What better way to do that, than to have the viewer interact with that tool?"

By repurposing an abandoned mill into a community theatre and loft-inspired tapas bar, the project gives the architecture a new lease of life. The model is exclusively lit with MP Lighting's LED products, including spotlights, step lights and linear systems for ambient or decorative effects. Chris talks to **3D Artist** about the inspirational and motivational factors behind this latest arch-vis feat.

*How did the project land in your capable hands, and can you tell us what was your role exactly?*

As a 3D specialist with MP Lighting, I pitched an idea to consolidate the lighting renders in their print catalogue as a concept-based project to showcase the company's LED products. I conceived an abandoned mill reclaimed by a community and transformed into a theatre and bar. I worked on all aspects of the project: concept design, modelling, lighting, texturing and managing the workflow. The owner and president of MP Lighting, Mirek Pospisil, was a great sounding board for design ideas throughout the process – without his trust in me and in the idea, the project would not have happened.

*What goes into the creation of a conceptual, web-based, interactive, architectural showcase? Can you explain the process?*

It definitely didn't start out as an interactive product showcase! I started with print ads featuring the mill. Then I had the idea to present the conceptual

# flare

## Chris Kowal

**Job title** 3D specialist

**Website** http://chriskowal.com

**Location** Vancouver, Canada

**Bio** Chris has a BFA from Emily Carr University and an Architectural Technologist Diploma from the Northern Alberta Institute of Technology. When he graduated from NAIT he decided to combine both degrees to pursue a career in arch vis. While Vancouver is relatively small, he finds there are plenty of 3D opportunities for artists to sink their teeth into.

**Tools:** 3ds Max, V-Ray, Photoshop, CrazyBump, After Effects

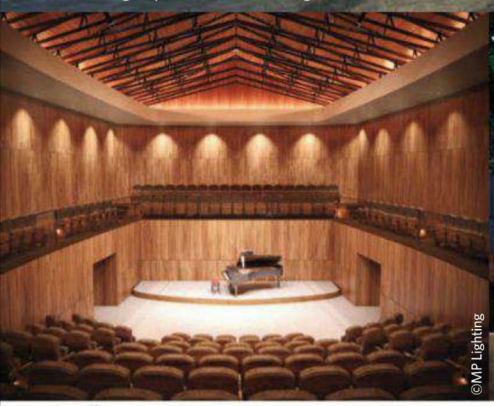
©MP Lighting

**EXPLORE**
The 'Mill Project' online at **www.mplighting.com/project**

The 'Mill Project' is a conceptual, web-based, interactive web design, featuring stunning shots of a mill at various times of the day, with different lighting solutions

> High-end 3D images are no longer static. The 'Mill Project' is an exploration of this potential

The mill's foyer, from concept to completion, starting with a digital paint-over and drawing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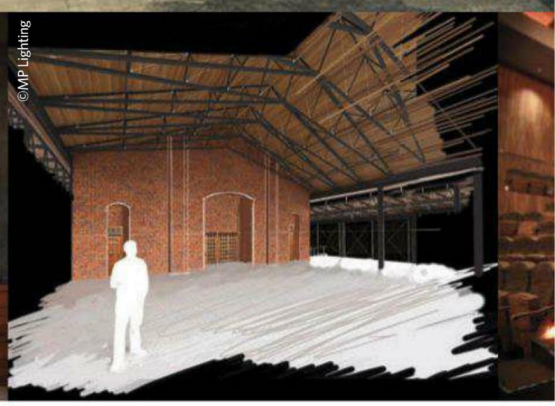

©MP Lighting

space online. At that point I started to collaborate with MP Lighting's web developer, Noah Fang, considering the variables and possibilities of online platforms. As the web project was nearing completion, I was working with the V-Ray render elements and had an epiphany: Why don't I render out all the lights separately? That would enable the viewer to visit the online space and have control over the different lighting elements in each room. This idea shaped the rest of the project.

*What were the key aspects you had to keep in mind for this project?*

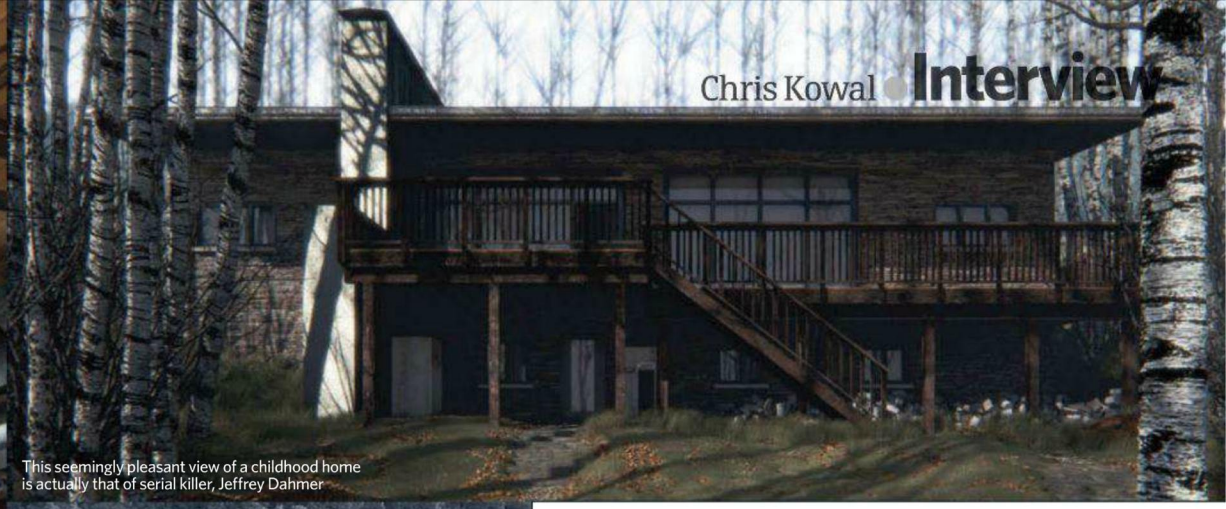
At the forefront of my mind was the fact that lighting is a difficult thing to represent, and of course I wanted the product and the renderings to look good. With lighting, the product doesn't exist without an architectural space. When I first started the mill, I didn't envision an online, interactive project. This idea came about by being open in my design process. The fact that MP Lighting was supportive of the evolution of the project was essential to its realisation.

*What different software did you use at the various stages to really bring the project to life?*

I used 3ds Max, V-Ray and Photoshop throughout the process, CrazyBump for texturing and After Effects for compositing.

*You list several plug-ins on your website, including CrazyBump and Onyx. How important are these additional tools?*
Plug-ins are important! It's not just one software package or plug-in that produces realistic results – you need to be fluid in your production pipeline.

*And how about your hardware – what are you running all this on? Can you give us an idea of what your work setup is like?*



This seemingly pleasant view of a childhood home is actually that of serial killer, Jeffrey Dahmer

## Workflow tips

### Chris Kowal explains his design process

"I start with a design problem, conceptualise its solution and a plan for the project. During my research phase I build a library of reference images. I then move on to quick massing models and digital paint-overs of those models to flesh out the details. I complete the modelling and then work on the lighting and texturing process simultaneously. Finally, I lock down my cameras and do final renders."

A This dusk shot of a house entrance contrasts a sharp modern build with fresh, green foliage

B The website features a mill site map – simply click to reveal sections of the build, such as the theatre and dock stairs

C Chris rendered out sections of the building, including this long view spanning the length of the mill

D A re-creation of the cabin of the Keddie Murders. The cabin was demolished in 2004

I'm currently running Dual Intel X5680 3.33 GHz processors and 24GB of RAM on Windows 7 64-bit. My graphics card is a NVIDIA Quadro 5000.

*Since your employer is a lighting company, how much research, planning and effort went into executing the perfect lighting scenarios?*

I developed concept designs for a number of lighting scenarios, trying to incorporate as many products as possible into each scene. I researched the technical aspects of each lighting fixture and looked at reference photos for colour temperatures corresponding with different times of day. Alongside these technical considerations, I had to make the project believable architecturally. The lighting couldn't exist on its own [so] the architecture and space became just as important.

> "It's not just one software package or plug-in that produces realistic results – you need to be fluid in your production pipeline"

*How many renders did you pull out in the end, and what time limitations were you working within?*

The 'Mill Project' took seven months from concept design to completion. We have pulled out around 25 advertising renders so far, as well as nine interactive renders on the site. The project is also designed to be expandable over time – the digital model can be reworked to evolve with MP Lighting's catalogue and imaging needs.

F

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## The freelance way

### Chris Kowal considers the highlights of living and working in Vancouver as a freelancer

"Canada is a large, diverse country that I invite everyone to explore," Chris says. "[Vancouver is] a great place to live and work: there are beaches, mountains and the ocean – if you like the outdoors, this is the place to live.

"There are major studios in the film and gaming industries that call Vancouver home. Pixar recently opened a studio [here]. There are plenty of opportunities as a 3D artist [and] the community is diverse. [But] if you want to freelance in any city – not just Vancouver – you have to put yourself out there, you have to hustle. Vancouver is no different.

"I haven't ventured outside my county for work, as of yet... All my work has come from people who had direct exposure to my work [but] one thing I have done to put myself out there internationally is posting on CG sites – CGarchitect, CGTalk, and the Ronen Bekerman 3D Arch Vis Blog [have all opened up] opportunities... These sites are also a great source of information and inspiration, as well as [a chance to get] international exposure!"

> "The project is also designed to be expandable over time – the digital model can be reworked to evolve [as required]"

*Can you briefly walk us through one of the lighting setups, discussing the tools and techniques used?*

I use V-Ray as my render engine. It has a physical-based camera, which I love and always use. For most of the images I used HDR images, IES files and a new feature to V-Ray: the Soft Box light. What I try to do is keep things as close to the real world as possible. I could elaborate but there's really nothing extraordinary about my lighting rigs. My focus is as much on the innovation of a particular project as on the technical aspects of each image.

*The map of the mill that reveals the different rooms is beautiful! What were the technical difficulties involved?*

I wanted viewers to be able to locate themselves within the architecture of the mill, and thought it might be interesting to create a 3D map. Using the strategy of layering images, I rendered out section views of the mill that are revealed when the user selects a location on the map.

*How is the 'Mill Project' a reflection of the demands of modern audiences? Were any changes made to the concept to suit demand?*

The consumption of images is evolving at such a rapid pace that portable content – especially on tablets – is shaping the function of the image. The concept of the mill shifted from print, to web, to mobile platform, reflecting this reality.

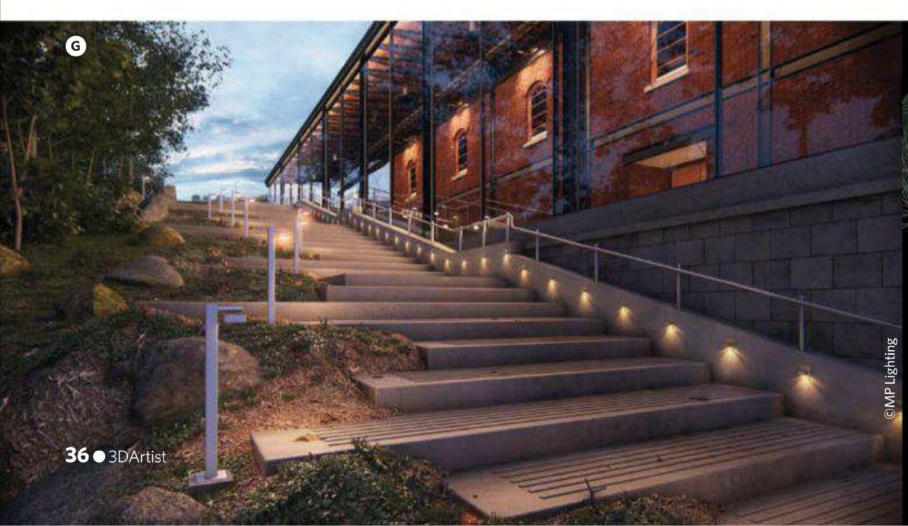
*How have you seen the arch-vis industry evolve over the years? What have been the key changes in the way artists design and present visualisations?*

F This serene daytime shot of the mill, with a view from the river, shows the building in natural surroundings

G Day and night shots of the stairs looking up at the mill

H Chris created a scale model of the world banking debts and their interconnectivity

I The mill's theatre stage from the balcony, entrance and from the lower bowl

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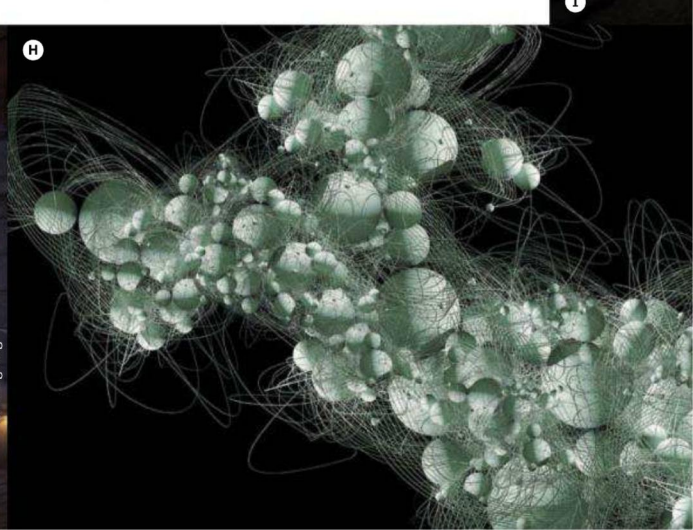
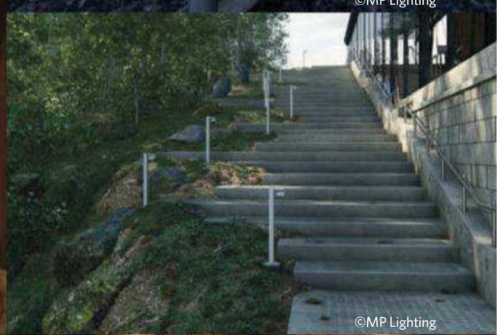


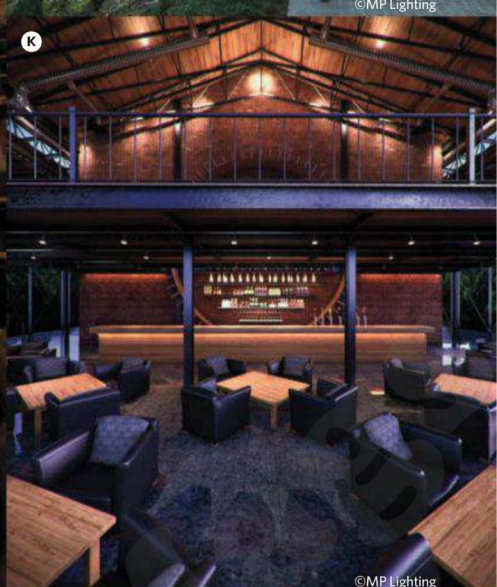
H

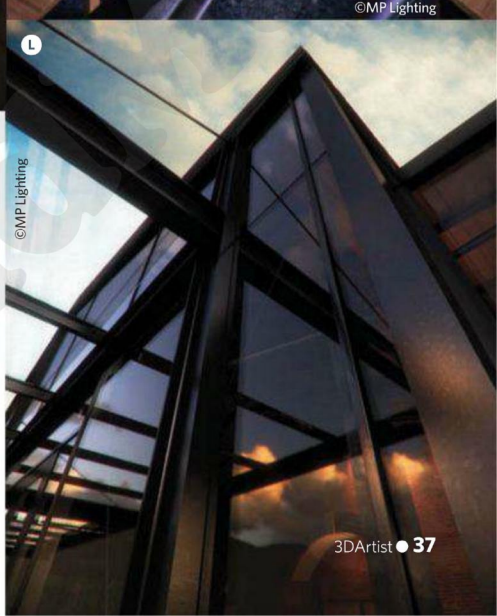
J A detail of the railing, for the interior stairs of the mill, shows Chris's eye for a good shot

K The interactive website design enables you to turn lights on and off in different areas of the mill

L A stunning detail shot of the front entrance of the mill, with the entrance to the theatre seen behind the glass



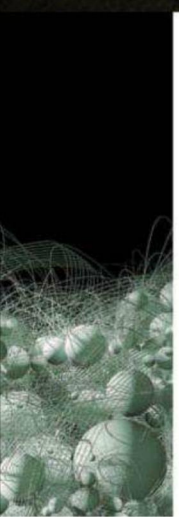




> "With lighting, the product doesn't exist without an architectural space"

The push is being felt from real-time processes and portable consumption. When I started in architecture, the main mode of communication was a large-scale, glossy print hung on a wall. We've moved from a print-based image to a digital, backlit image that is portable, and that now has the potential for interactivity. The consumer feels, and wants to feel, that they are a part of the creation process while they consume. That has my attention as a 3D artist. I love creating a highly polished image – once thought of as a static thing. But what's amazing is that these high-end 3D images are no longer static. The 'Mill Project' is an exploration of this potential.

*Finally, what are your plans for the future? What's the dream?*

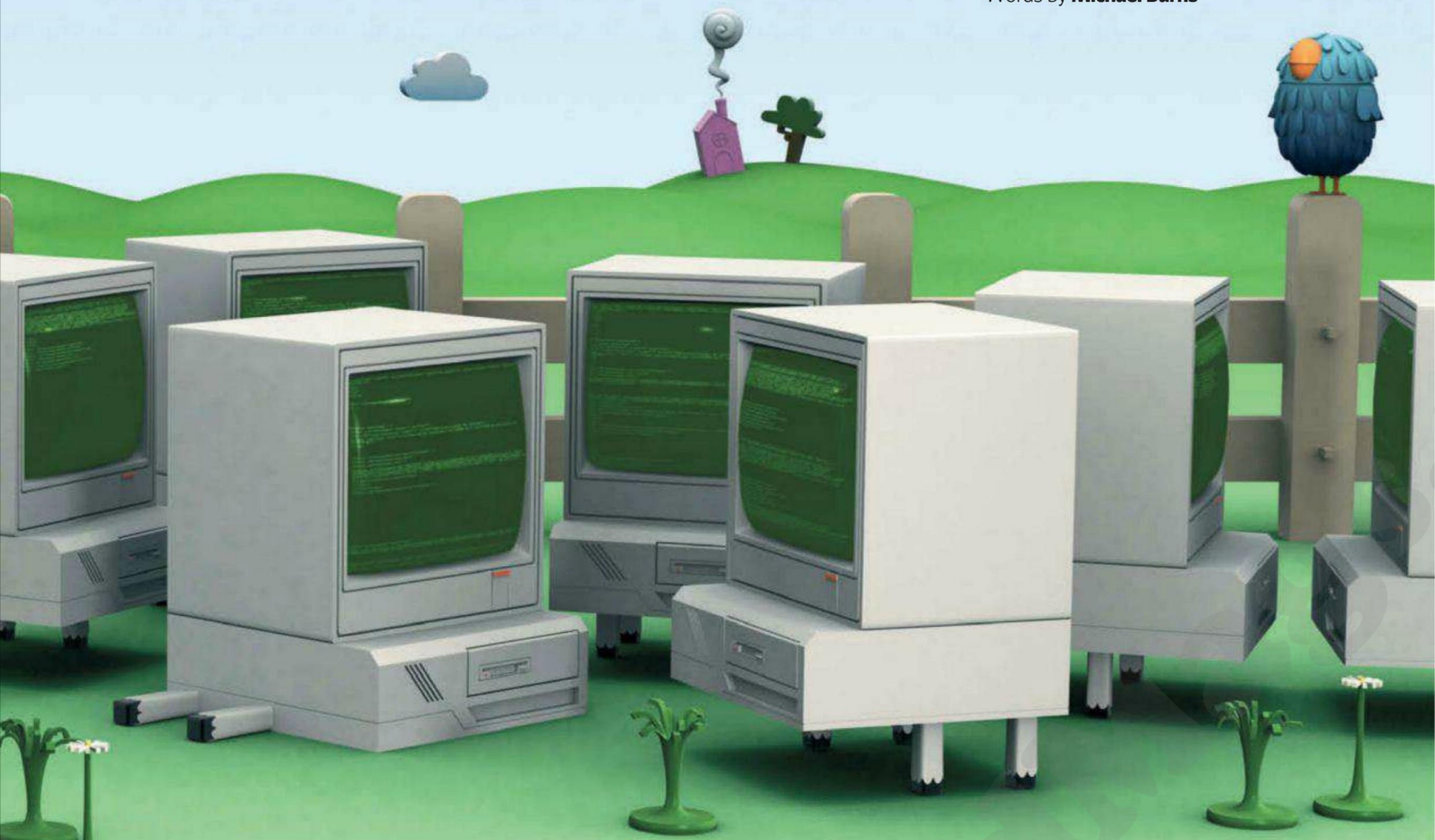
I'm always looking forward to projects that push my skills and understanding of 3D design. I love being involved in commercial, studio and education-based facets of the industry –I've found that each area of my practice informs the other. Going forward I'm interested in exploring the relationship between real-time, photo-real and mobile platforms.



# INCREASE YOUR RENDERING POWER

Masses of linked servers, dedicated solely to ploughing through the rendering of animation and VFX frames, are within the reach of all artists

Words by **Michael Burns`**



**The ability to distribute rendering tasks over multiple networked processors is a common feature in most popular 3D software applications.**

Craig Ramsay of Shake Digital (www.shakedigital.com), who runs 3ds Max 2012 with V-Ray for 95 per cent of his visualisation work, is perfect for using this kind of process. "In-house I have a small render farm of eight quad-core machines that are dedicated to rendering tasks and a Xeon quad-core server that manages them all," he explains. "As most of my work is image-based, and as a one-man band, this setup usually provides me with enough horsepower to get the job done. All my renders are sent through Backburner to render in the background, leaving my workstation free to work on other things."

> "Need more power and flexibility than you have on-site? Enter the render farm service"

3ds Max gives you the ability to set up a local rendering farm with just one licence of 3ds Max. From there you can install it on up to 9,999 machines for rendering tasks. Autodesk's Backburner toolset manages the complex responsibilities of assigning frame batches to multiple machines.

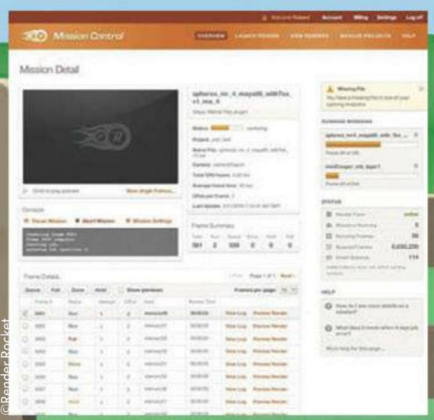
Jamie Gwilliam (http://jamiesjewels.typepad.com) is a 3D application specialist for Autodesk. "Backburner automates some of the common tasks and [enables you to] control which machines perform what tasks, and which rendering jobs within the studio have a higher priority, based on internal deadlines," he says. "It's also worth noting there are many third-party options to manage these tasks."

## Key considerations

**You should follow a checklist before any job is submitted to rendering, whether it's to your own render farm or an external service**

- Is the geometry efficient?
- Is the scene optimised? Is there geometry you really don't need?
- Are the materials optimised?
- Use node-based material editors to check for unnecessary texture map duplications
- How many reflection bounces are necessary?
- Do you need GI (Global Illumination) enabled?
- Only use Gamma if you understand it. Leave it at default settings otherwise
- Remember that external companies may not have the same plug-ins or scripts in use as you
- Are unnecessary plug-in references removed from the scene? (Look for helper objects)
- Do any messages appear when you load the file? These may pause or stop the rendering process
- Use literal rather than relative file paths
- Don't use duplicate file names
- Test, test and test again!

Arch vis of a terrace situated on the top floor of the proposed 'Light-house' project in Aarhus, Denmark. 3ds Max, V-Ray, Photoshop




©Render Rocket

Render Rocket (**www.renderrocket.com**) enables content creators to upload their render job and download the finished job once it's completed

## Friends on the outside

Sometimes, though, you need a bit more power or flexibility than you have on-site. Enter the outsourced render farm services. These are companies that offer you time slots on their network of dedicated rendering workstations, usually based on an hourly rate. The process typically involves contacting the service to discuss the render job first, then sending the files via FTP, courier or dedicated GUI. For example, Render Rocket (**www.renderrocket.com**) enables customers such as Psyop, THQ or Lockheed Martin to upload their render job via an interface called Mission Control and download the finished job once completed. "In that interface, the content creator can track their job, the credits they've purchased and much more," says Ruben Perez, CTO of Render Rocket. "We provide a number of different pricing options to accommodate any kind of job and rendering environment. What's more, we maintain the licences on most rendering software, so content creators need not worry."

Render Nation (**www.rendernation.com**) is another render outsourcing company, based in Liverpool, with a 120-server render farm available on-demand. "Rendering comes down to capacity management," says the company's technical director Jim Mooney. "If an artist primarily produces still images and can manage the rendering on their PC when it's not being used then it's cool. The satisfaction stops when a deadline is pending. If an artist is still finishing off one on their PC but they have to deliver two images by morning, then it's suddenly an issue. If an artist or studio has an animation to deliver in a short period, then it really gets tough. Rendering is very parallel. Essentially the more PCs you have the better. But it can be very costly to purchase enough PCs to cope with peak demands, given that they can sit idle."

Under such circumstances, in order to deliver a project on time there may be no alternative than to look at third-party support – either by using a service like Mooney's, or by doing what the big VFX houses do and co-locate some render capacity externally. An example of the latter route is offered by ZYNC, an invite-only cloud-based storage and rendering solution (**www.zyncrender.com**).

Project Pandora is a joint research project between NVIDIA and Autodesk for 3ds Max iray users. "This technology brings iray to the Pandora cloud, but can be accessed by any 3ds Max machine that has Flash installed," says Jamie Gwilliam. "The process uses a technique similar to progressive and distributed rendering, where all the cloud GPUs within the cluster nodes work on the current frame. Once the 3ds Max scene is uploaded to the Pandora cloud, it can then be viewed within a web browser using Liveview."

The Foundry's Andy Lomas (**www.andylomas.com**) has experience in using cloud-based rendering. "The cloud is obviously very attractive from the point of view of having huge amounts of rendering resources available just when they are needed, and without companies having to build their own data centres," he says. "The big challenges are dealing with the enormous data sets that are often used in production. Typically the data needed to render is [a lot] larger than the size of the final render frames. Getting such data sets to computers on the cloud is a big challenge. If you're dealing with smaller data sets, the cloud is already a great solution."

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A

©Meindbender

B

A By using Renderfarm.fi 3D artists and animators benefit from being able to use higher image quality when rendering

B *Pirate* – Meindbender's ident for Cartoon Network, created in Maya and rendered in Maxwell Render using RenderNet

©Cadpeople A/S

Arch vis of an office building in Copenhagen, Denmark. Commissioned by 3XN and KPMG. 3ds Max, V-Ray, Photoshop

Increase your rendering p ture

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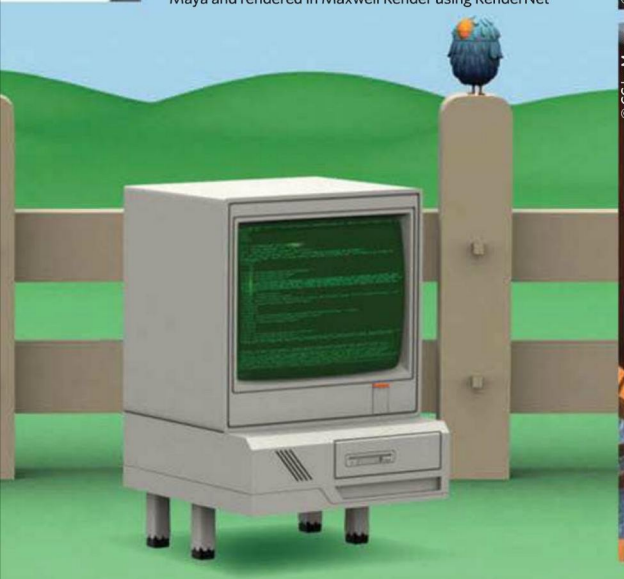
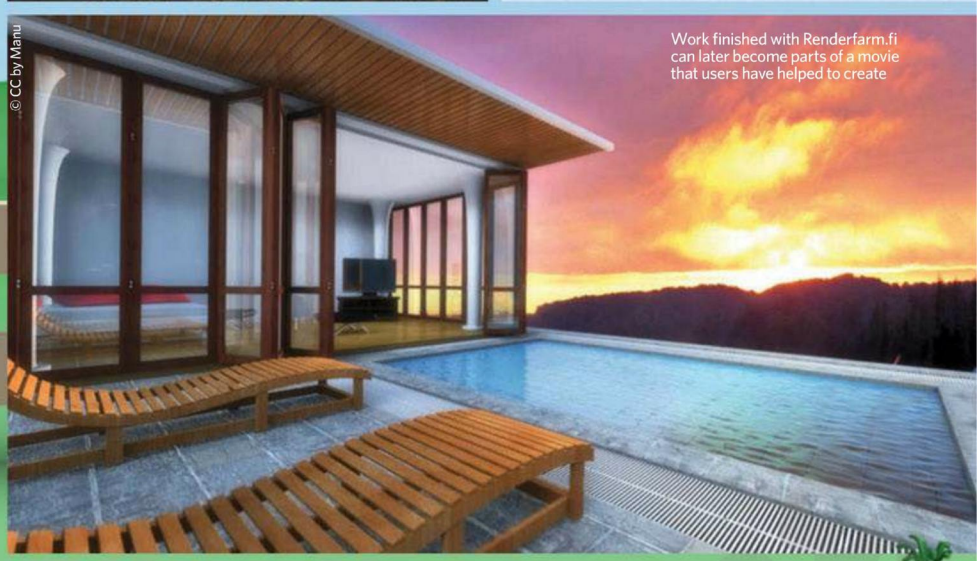
Renderfarm.fi is a completely free service that renders animations and stills using the computing power of global volunteers





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Work finished with Renderfarm.fi can later become parts of a movie that users have helped to create

Graven Images had to co-ordinate all artists involved on the project from music and voiceover artists to the postproduction and 3D artists, before anything went to the render farm

Graven Images overcame the risk of errors by lots of in-house testing and frequently liaising with Render Nation to ensure that the animation frames came out looking the same for both parties

©Andy Pennington of Graven Images

# Graven Images

**Graven Images outsourced its rendering when it had to balance photorealistic animation quality with a short amount of time**

Graven Images (**www.graven.co.uk**) in Glasgow was asked to produce an animation of a contemporary office that it was designing, to present the design proposals and act as a marketing resource. "The office had several key areas with bespoke furniture arrangements and a variety of finishes that all needed to be communicated," recalls artist Andy Pennington. "The animation was... to be informative as well as photoreal. Given the short timescales, we knew early on that we would require the services of a render farm."

Graven Images approached Render Nation following a recommendation. "They were able to accommodate our requirements on short notice and they had the hardware to cope with it effectively," says Pennington. "Due to the complexity of co-ordinating audio with camera work and postproduction, we underwent rigorous in-house testing before issuing to the render farm. In order to ensure things went as smoothly as possible we did all our lighting pre-calcs in-house and produced some test segments of animation. We also consolidated our textures and proxies."

The time between upload and rendering completion was roughly six to seven hours. "Render Nation carried out lots of testing for us and advised on some adjustments that would make the process faster and more efficient," says Pennington. "The animation was rendered out faster than expected and there was nothing in the way of errors. I can't disclose the costs but we felt that it fairly reflected the service and we were happy with it."

## Down on the farm

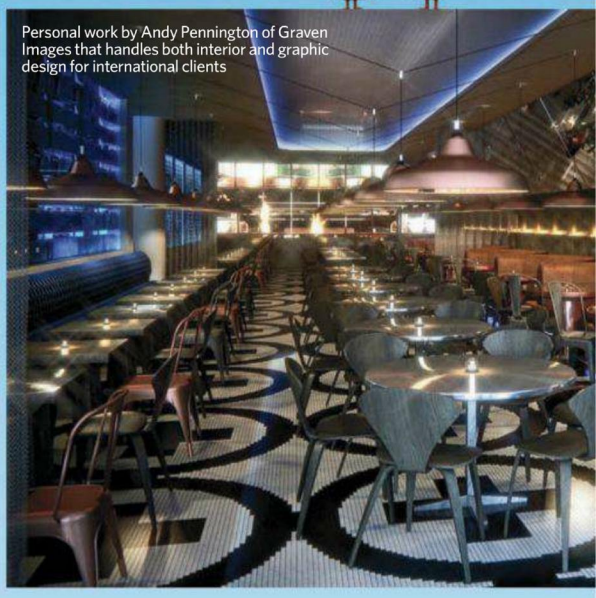
Andy Pennington, an active freelance visualisation artist (www.andypennington.net) as well as an employee of Graven Images in Glasgow (www.graven.co.uk), has used outsourced rendering on a number of occasions when producing high-level marketing images and product visualisation.

Pennington says: "Wherever possible we try to render in-house but we have had both high-resolution still images and animations rendered for us. Time is almost always the deciding factor but economically it makes more sense to have your work rendered off-site if it frees up chargeable time that would otherwise have been halted. Although costs are always a consideration, most of the 3D visualisation we produce is considered an integrated part of a wider project and so the costs incurred often become secondary to fulfilling our obligations to the project and our clients."

In Pennington's experience, a good external render farm can typically turn over a reasonably sized animation in anything from a few hours to overnight. "If they are a reliable service, this [saves] valuable productive time which can be invested back into your scene in the form of better modelling, texturing and postproduction. Your quality images and animations will directly benefit as a result."

"The obvious benefit is the raw rendering power that dedicated rendering companies provide," says Craig Ramsay. "With today's technology, clients expect animations to be provided in at least HD-720p resolution. Realistically, there's no way I could render an animation in-house at HD resolution in a reasonable amount of time. Having the option to use a dedicated rendering service means I don't have to turn down animation jobs and can actually get everything rendered out very quickly."

Another such customer is Cadpeople UK (www.cadpeople.com). "We do visualisation and animation of architecture and product design that are used as either standalone marketing materials or integrated into our e-learning solutions," says company director Jonas Andersen. His experience with outsourced rendering as a whole has been positive: "We have only



Personal work by Andy Pennington of Graven Images that handles both interior and graphic design for international clients

C Visual effects studio Mainframe doesn't often use external render services as it has an internal farm of its own. On occasion it uses them for heavy renders

D Personal work by Andy Pennington, an active artist and also the in-house 3D visualiser for Graven Images, a cross-disciplinary design studio based in Glasgow

## Pick from the cream of the crop

| COMPANY | WEBSITE | SOFTWARE COMPATIBILITY | PRICE | CUSTOMER SUPPORT |
|---|---|---|---|---|
| render-it | www.render-it.co.uk | Broad range including Maya (with mental ray), 3ds Max, CINEMA 4D, V-Ray for 3ds Max | POA, minimum charge of £200. Free test render | Phone, email |
| Render Nation | www.rendernation.com | 3ds Max, Maya, CINEMA 4D, Vue xStream, LightWave 3D, mental ray and V-Ray | From £0.50 (ex-VAT) per server-hour. Minimum per invoice £100. Job estimates can use online cost calculator. GHz-Hour price available | UK and international phone, email |
| RebusFarm | www.rebusfarm.net | Farminizer software supports 3ds Max, Maya, CINEMA 4D, Softimage, modo, LightWave 3D, Maxwell Render, mental ray and V-Ray (all versions) | POA in GHz-Hours. Job estimates can use online cost calculator | Global Phone Support |
| Render Rocket | www.renderrocket.com | Maya, 3ds Max, V-Ray for 3ds Max, V-Ray for C4D, V-Ray for Maya, mental ray for 3ds Max, mental ray for Maya, CINEMA 4D, Maxwell 2.6, Maxwell for Maya, Maxwell for 3ds Max | $0.70 per core/hour. Job estimates can use online cost calculator | Phone, email and forum |
| Rendercore | www.rendercore.com | Maya, Brazil, 3ds Max, XSI, LightWave 3D, CINEMA 4D, V-Ray Standalone, V-Ray for 3ds Max, V-Ray for Maya, V-Ray for C4D, modo, Blender, Vue | $0.70 per core/hour. Job estimates can use online cost calculator | MSN Messenger, Skype, email, live phone (US office hours apply) |
| RenderCubic | www.rendercubic.com | Maya, 3ds Max, LightWave, CINEMA 4D, XSI, modo, Blender | $0.70 per core/hour. | Phone, email and forum |
| Renderfarm.fi | www.renderfarm.fi | Blender | Free | Email and forum |

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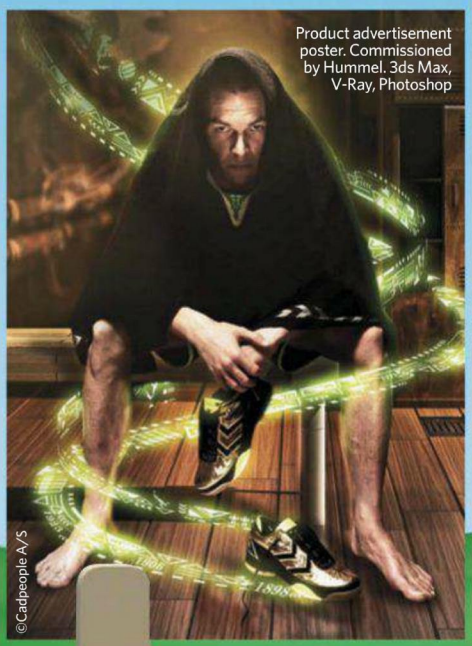
Product advertisement poster. Commissioned by Hummel. 3ds Max, V-Ray, Photoshop
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Increase your rendering power

©Cadpeople A/S
Concept 3D image in relation to the marketing of e-learning products. 3ds Max, V-Ray, Photoshop

D
©Andy Pennington of Graven Images

used Render Nation within Cadpeople but I also have previous experience with render-it. The choice was hugely influenced by the ability to speak to a real person with solid software know-how.

"[Outsourcing rendering] is not cost-effective compared to in-house rendering, but when faced with impossible deadlines it seems fairly economical," he adds. "It probably was a one-off as our in-house farm is quite substantial, however it gives us confidence in tight deadlines, knowing outsourcing is a viable solution when needed."

"I outsourced rendering to RebusFarm due to their [Farminizer] software that lets you upload your scenes to their farm directly from 3ds Max," says Ramsay. "It also checks your scene for any potential problems before the upload – it's pretty clever stuff."

Ramsay also has experience of using Render Nation as a solution: "I was very impressed with the service that they provided – working on a weekend to help me meet a very tight deadline and even installing a specific plug-in that I requested," he recalls. "Being able to pick up the phone and have instant support is very important to me."

> "Having the option to use a rendering service means I don't have to turn down animation jobs and can get everything rendered quickly" **Craig Ramsay**

## Error-checking

However, Pennington admits there is almost always a pressure element when using a render farm service. "Typically you are using it at the end of your project timeline," he explains. "This leaves little or no margin for error when setting up your scene." Jonas Andersen definitely agrees: "It's very easy to make costly mistakes," he says.

Jamie Gwilliam says most of these mistakes can be avoided with a bit of planning. "Remember external companies, or even internal departments in other geographies, may not have the same plug-ins or scripts in use," he says. He suggests having a look around your office and seeing if there is an old machine that you can use as a testing device to load files, with a clean install of the specific software. "This will allow you to test the scene and examine if anything is missing before you submit the project to an external or in-house resource," Gwilliam advises. "Just because it works on your local machine, does not mean it will work on the farm."

"The key thing to remember to make rendering more efficient, either in-house or externally, is to test [again and again]," says Jim Mooney. "This makes the process much smoother, and when scenes are left to render overnight, we all have the confidence that they will be correct the next day."

Render farms can help all types of 3D artists, from a one-person setup in a single room, through to companies working on a large commercial scale. The next time you find yourself stuggling to complete a job, why not try the render farm solution?

# I made this...

## Incredible 3D artists take us behind their artwork

Artist info

**Rostislav Nikolaev**
3DArtistonline

**Website** http://archirost.blogspot.co.uk
**Country** Russia
**Software used** 3ds Max, V-Ray, Photoshop

"The most complex and interesting process was customising the lighting. The first thing was to set up a soft Fill light. I then added the sun, searching the settings to get a morning light"

"I created this as inspiration for a renovated studio apartment, which I rent with my girlfriend. We've used the same natural, simple materials to decorate and we have a fireplace with a mirror. It's a great pleasure living in this style of interior"

## Interior in Scandinavian style 2011

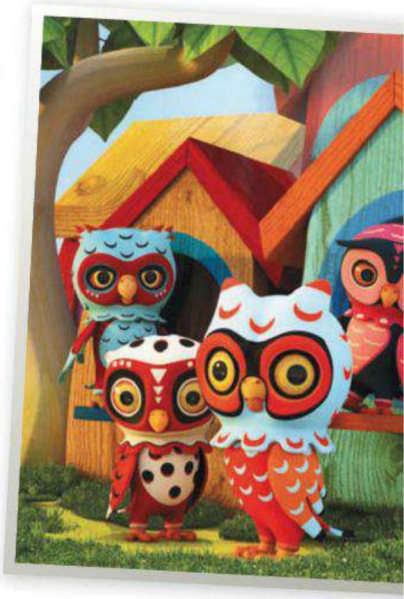
**This work was created as an educational project [because] I wanted to work out basic materials and lighting schemes. I also aimed to build a room in my favourite style: Scandinavian. It's a convenient and independent style, dominated by bright colours and natural materials – a style without frills and luxuries, but with practical furniture, natural flowers, a wooden floor and bright accents.**

"I tried playing with complex materials – there weren't so many in the end, and they were perhaps not 100 per cent successful... The materials on the table, piano and mirror were based on maps mixed with VRayDirt"

**Software used in this piece**

3ds Max V-Ray Photoshop

“I removed almost all the light from the environment to get a twilight setting. The render with candles turned out quite interesting too – I turned off everything except the candles to create a sense of deep night!”



# Master modo

## Owlivia 2012

"The image was made for portfolio exposure and it is a cartoon-style, character-based 3D illustration" **Teodoru Badiu** Creative media designer

**In this tutorial we will show the creative workflow for a cartoon-style owl character named *Owlivia*.** The character is one of four that together are part of an illustration.

This tutorial will require a medium level of experience in working with modo and Photoshop. We will go through an overview of the techniques and tools used at the various stages of the workflow.

We will cover the whole creative process required to create the character, from the sketch to the final rendered image. You will learn how to use box and polygon modelling styles for the owl's creation. We'll cover UV unwrapping, material creation and texturing, along with the rendering settings and passes needed for postwork. The postprocessing adjustments and tweaks are completed using Photoshop.

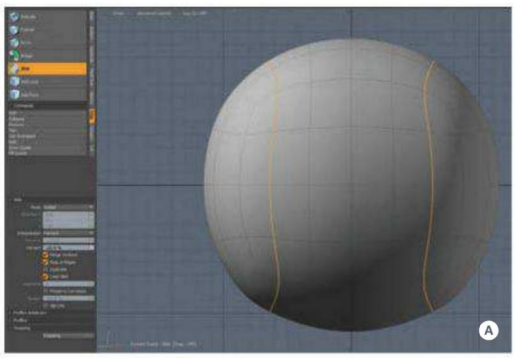
The great challenge for me was to translate the pencil sketch of the character to a 3D model without losing its original look and charm.

### Concept

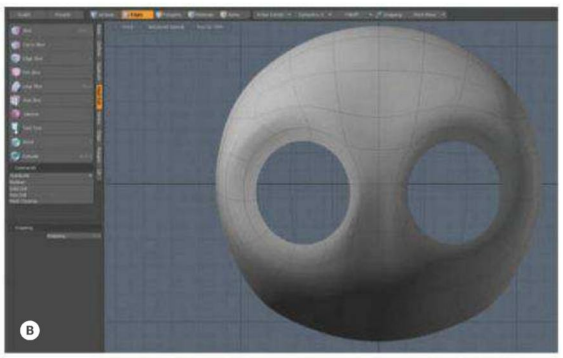
The inspiration for this image came from a sketch that I drew. I liked the look of the sketch and drew a few more that I then used as the basis for a larger illustration named *Owl City*. *Owlivia* is one of the owls that I created for that project from the sketch.

## Chisel out the face

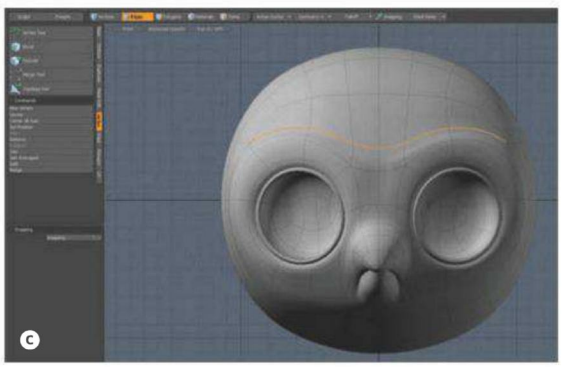
Sculpt out the essential aspects of your owl's head



**01 Create the owl head** Start modelling the head of the owl using the Solid Sketch tool. For this create one sphere with a Subdivision Level of 2. After that, canter the sphere, select the middle edge loop and use the Bevel tool to bevel it. Next add a new edge loop in the middle using the Loop Slice tool (Cmd/Ctrl+L) and also use the Edge Slide tool to reshape the item to a suitable sphere A.



**02 Craft the eye sockets** For the next step turn Symmetry on the X-axis, select four polygons on the right side of the sphere and delete them. Using the Element Transform tool (T) in combination with the Edge Slide tool, add a circle-shaped edge for the eye socket and use the Edge Extend tool (Z) to create a new edge. Use the Mesh Edit/Edge Slice tool to shape a new edge loop around the eye socket. This will help to get the topology needed for the owl face B.



**03 Eye sockets and beak** To close the eye sockets you should use the Edge Extend tool (Z) in combination with the Move and Scale tools. Close the eye sockets using the Create Polygon tool (P) and the Edge Slice tool. The next step is to create the eyelids using the Bevel tool and carve out the beak shape using the same tool. After that you can use the Move and Transform tools to adjust the topology around the eyes and to get as close as possible to the wide, circular eyes as they are on the sketch C.

A Use the Edge Slide tool to adjust sphere topology

B Create a new edge loop around the eye socket to define the topology

C Close the eye sockets and model the form and shape of the beak

**Software used in this piece**

modo Photoshop

Modelling Texturing, Postwork

MASTER MODO SPECIAL

## Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

**Teodoru Badiu**

3DArtist online

**Username:** Theodoru

**Personal portfolio site**
www.theodoru.com

**Country** Austria

**Software used**
modo

**Expertise** Character design, modelling, texturing and rendering for the purpose of developing illustrations.

# Apply the head details

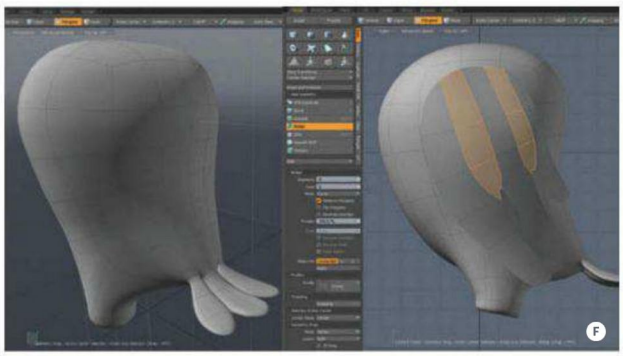
With the main features in place, begin to work on the details

D

E

**04 Ears, collar and beak** The ears are formed using the Polygon Bevel tool in combination with the Edge Slice, Move and Transform tools. To create the collar, delete all the polygons at the bottom of the head, then select the new edge loop and use the Edge Extend tool to create a new edge. The next step is to delete polygons to get the look you want for the collar. You can see the style we went for in the image, but of course you can make it your own. Use the Cut tool to take away the beak polygons and paste them into a new mesh. Use the Edge Extend tool (Z) and the Create Polygon tool (P) to close the gaps on the head and beak. Last, use the Edge Slice tool to create the new edges needed for the topology of the head and beak features D.

**05 Sculpt the body** For the body sculpting, start with the Solid Sketch tool. This process is much the same as when we built up the head. Change the viewport to the Right View to get a better perspective on what we're working with. By clicking once with the tool activated and a Subdivision Level of 2 in the window, create one sphere for the upper part of the body then with the tool still active add a second smaller sphere that will form the lower part of the body. Drop the tool and select the lower part of the body. With the Action Center on Edge Border and with the Rotate tool active, you can form the curved shape of the body. By selecting polygons on the lower body part you should be able to bevel out the legs easily E.



F

**06 Create the tail and wings** The tail creation is relatively simple. First add the middle feather using the Bevel tool in Polygon mode. Then activate Symmetry on the X-axis and, using the same tool, shape out the two other feathers. Next in Edge mode, using the Transform tool, reshape the feathers. To build the wings, you should add a new mesh layer above the body layer. With the Pen tool in Polygon mode, the Make Quad feature and the Snapping on Background active, create three polygon stripes that will be the wing feathers. To finish this stage, drop the Pen tool and use the Bridge tool to connect the feathers and form the wings. To really flesh out the wings you can use the Thicken tool. This adds body and realism F.

## Problems and solutions

At this point in the creative process, I had to make a few decisions on how I would go further. Bearing in mind that for the final illustration I would need four owls, I had to think about how far I could go with a modular owl model that I would be able to transform later with little time and effort.

To get the modularity that I needed I had to split the model in parts with each part on a different mesh layer. For this I created different meshes for the head, body, legs and eyes of the owls.

This approach not only gave me the ability to create other owls based on the same mesh but also simplify a lot of the UV unwrapping process. However it also made the material creation and the textures painting in Photoshop a lot easier.

Another advantage that modularity brings with it is that after the texturing work I can combine the meshes in two parts, body and head. This will be helpful later in the process when I am choosing different poses for the various characters' final renders.

## Artist Showcase

### Teodoru Badiu

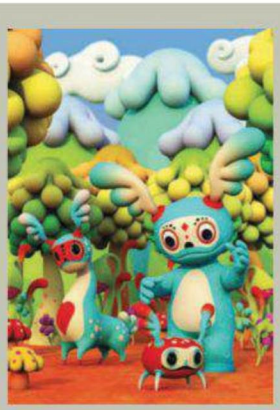
An illustrator, character designer and 3D-addicted artist based in Austria, Teodoru uses a vast array of different media and disciplines including photography, 3D, vector and traditional drawing. The combination of all these elements has helped him develop a unique style – mixing a colourful palette with darker iconic elements and narrative.

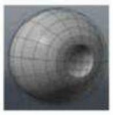
***ShroomZee and the Woody Mecha*** **modo, Photoshop (2011)**

*ShroomZee* is a personal image based on one of my older simple characters that I have revived. I gave him a personality and prepared him for some adventures.

***Zuppo's Quest*** **modo, Photoshop (2011)**

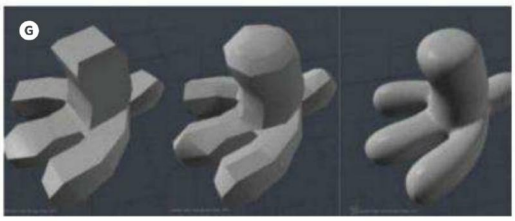
*Zuppo* is one of my favourites. In this illustration I have created a new environment and some additional characters with the same key feature used for Zuppo. The result is an enchanting realm, with a sweet candy look.



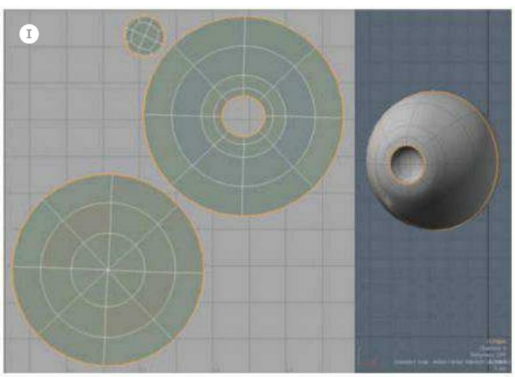


# Build character elements

## Use UV unwrapping to create smaller features

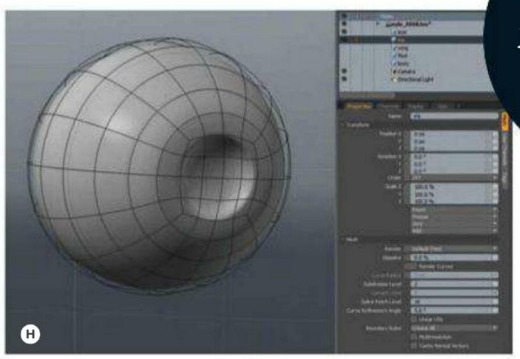



**07 Reshape cubes** The foot modelling started with one cube for the sheen and another four for the claws. Using the Transform tool you can scale, form and arrange the cubes to form an owl foot. Use the Edge Loop tool to add new edges where needed in order to form the foot and use the Bridge tool in Polygon mode to connect all the cubes together. Subdivide the newly formed foot and use the Sculpt tool to round it out along with the claws. The next step is to use the Mirror tool on the X-axis to create the second foot G.




**09 Assign and name materials** By selecting all the iris polygons and pressing M on the keyboard you can create a new material named 'owl_iris'. Then select it in the List tab, delete the texture in the UV maps and create a new map with the same name as the material. Select the edge loop around the actual iris and the edge loop that divides the sphere in two halves. In the UV window activate the Unwrap tool with Spherical Projection and with one click in the UV window unwrap the iris. Pick the Relax tool and the Pack UVs tool to fit the UV to the map and finally select Texture/Export UVs to EPS and save the UV under the same name as the material I.

***Be my Valentine Wippo*** **modo, Photoshop (2012)** This image is a valentine print illustration that I have created to promote the upcoming Wippo toy, that I produce together with the lovely people from Circus Posterus.




**08 Model the wide eyes** This element of the owl is obviously very important. Using the Move and Rotate tools, place the eye iris in the eye socket then copy and paste it into a new mesh layer named 'retina'. Then using the Scale tool, scale up the retina mesh a little bit. Back to the iris mesh, add a new edge loop, select the four middle polygons and slightly bevel inside to form the iris. Delete the edges that are forming triangles inside the bevelled area H.

**1:40 hour render time**
Resolution: 3,510 x 5,000

D Use the Edge Slice tool to create edge loops needed for the topology of the head

E Body and legs modelling

F Use the Bridge tool to connect the feather and to form the character's wings

G The progress of modelling the owl's foot and claws

H Create the two meshes that together will form an eye

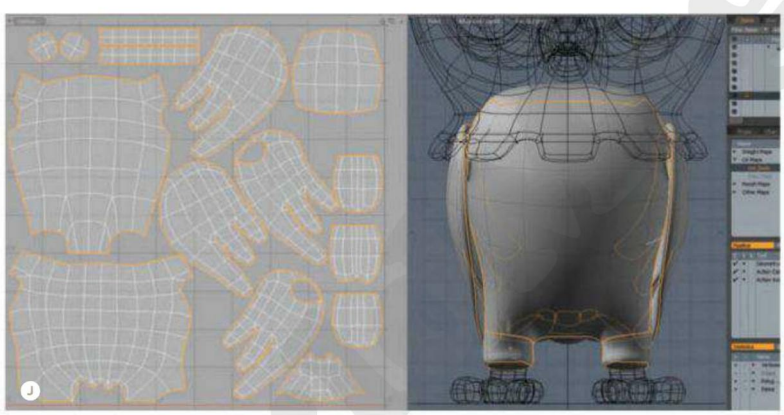
I UV unwrapping the eyes and map exporting

J Body UV unwrapping and texture exporting

### The wings

One important step in the modelling phase was the wings creation. At the beginning the wings were considered separate meshes but later on in the process I thought that if I would like to rig the owl later, this approach will not be ideal. Therefore I decided to make the wings part of the owl body and to get a better starting point for the rigging. This also helps a normal, modo-posing approach, using the Flex tool. To achieve that I had to attach the wings to the body before the UV unwrapping stage. I had to cut the wings out from their own mesh layer and paste them into the body mesh layer.

Next I added a new edge loop on the body and reshaped it to the initial form. I deleted four polygons on the inside part of the wings and four corresponding polygons on the body. Using the Bridge tool in Edge mode I have then connected the wings and the body as needed. I used the Move tool, the Transform tool and the Element Move tool to adjust the wings' form and the way they sat on the body to fit my needs.

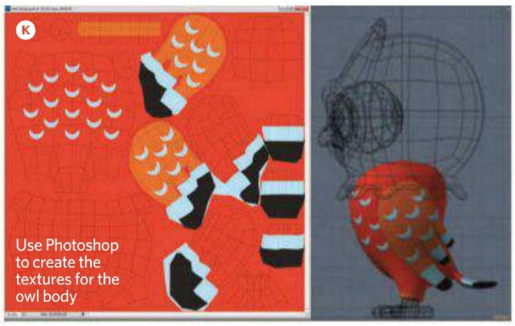



**10 Body, beak and foot UV unwrapping** For the eyes, assign a material for the body and create a new map with the same name. To unwrap the body you should select edge loops around the eyes, face, neck, legs, the edges that connect the wings with the body and the edge that divides the body at the front and back side. After the UV unwrapping use the Relax tool in combination with the Element Move tool (T), Scale tool (R) and Move tool (W) to arrange the UV on the map. You can also activate the Option/Show Distortion feature to see the distortions on the UVs and get rid of them. When you're happy with the outcome, you should export the UVs to EPS. Follow the exact same steps for the beak and foot of the character. Taking your time at this point is vital, the more you scrutinise your details, the better the result J.

# Texture and material creation

## Now it's time to create textures within Photoshop

**11 Body texture and material creation** In Photoshop open the exported body .eps file and set it to 2,048 x 2,048px at 100dpi. Next create a new layer and fill it with the colour for the body, we have chosen an orange but you can apply any that suits. Set the .eps layer to multiply and then, using it as reference, add the other features of the texture layer by layer and save it as 'owl_body.tga'. Based on the same texture also create a bump map. Back in modo create a new material and add the textures that are created as a Diffuse Color, Subsurface Color and Bump, all with a Gamma value of 0.4546 (K).



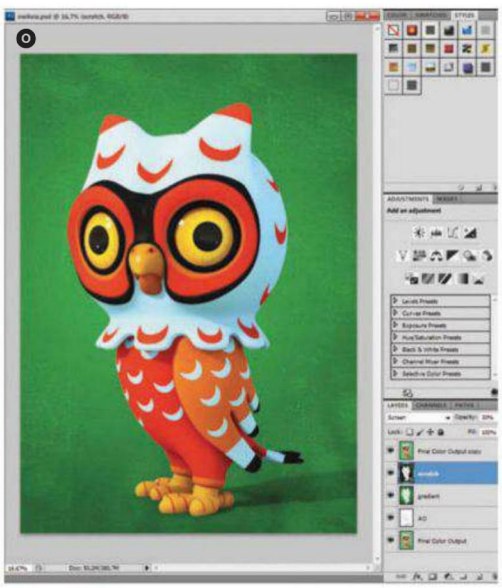

**13 Pose your owl** For this stage create two meshes, one for the body and one for the head. Using the Move and Rotate tools you can pose the head of the owl, the body and the foot. Also using the same tool in Polygon mode you can rotate the eyes to a position that gives the character an interesting, goofy look. Apply the Scale tool at this point to adjust the head item a bit more in order to get a cuter look. Select all the meshes and press the D key to subdivide them (M).

## SubD and Pixar SubD

Pixar SubD mode in modo is wonderful when it comes to texturing and rendering but during the modelling process it is a good habit to turn it off when you are shaping or when you are doing retopology. If you have a nice-looking mesh in normal mode you will have a great looking mesh in SubD or Pixar SubD mode. This habit will also save time if you will need the mesh later in time in low resolution for other applications or purposes.

**12 Get owl elements** To create the other textures use the same workflow as for the body texture. The only difference is in the material creation, that is slightly different for every element. For the head and the body material create materials with a low Specular Amount and high Roughness. For the beak and the legs make an material with a higher Specular Amount and lower Roughness. For the iris use a material with a high Specular Amount and Reflection Amount and low Roughness. Do the same for the eyes(retina) material and add 100% Transparency with 1.52 Refractive Index (L).

**14 Rendering settings and passes** First is to see the Frame size of the render to 3,510 x 5,000px with 300DPI. Next add two new render passes, one for Ambient Occlusion and one for Depth Output. You could also adjust the camera, the Depth Output and set the AO Range to 3cm. For the Light set the Shadow Spread angle to 5°, turn the GI on and from the Outdoor Presets add the Grass Field Environment and duplicate it. Set the first duplicate invisible and the second visible to the camera as a Constant Type with a green colour (N).




**15 Make adjustments in postproduction** Once the rendering is done, save the render as a .psd file and open it in Photoshop. Cut and paste the Alpha and Depth layer in the channels layers as Alpha 1 and 2. Set the AO layer Blend Mode to Multiply with 60% Opacity, and place it over the Color Output Layer. Also add two more layers: one with a dark green to light green colour Radial Gradient with a Multiply blending mode; the second with a scanned scratches texture with a Screen blending mode at 30% Opacity and knock out the Alpha 1. The last step is to duplicate the Color Output layer to place it above all the layers and to set the blend mode to Soft Light. Save the .psd file as a .tif file with a Lens Blur effect based on Alpha 2. With a bit of tweaking, your character should be done (O).

## Good workflow habits

During the tutorial steps I didn't mention how important it is to save your work as often as possible. It can save a lot of time if you incrementally save your file after each major step during the modelling stage. This is also useful later during the UV mapping and material creation stages.

(L) Create the textures and the materials for the head, eyes, beak and the feet

(M) Using the Move and the Rotate tool I have posed the head

(N) Render settings and creation of the Alpha, Ambient Occlusion and Depth Output for the postproduction adjustments

(O) Use Photoshop for postwork adjustments and finalising the rendered image

SMITH MICRO SOFTWARE

# Boundless creativity beckons you.

Image by synthymonkey.
Miki3 from Content Paradise. Circus props by Sixus 1 and Luke A, TerraDome by Runtime DNA.

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MASTER MODO SPECIAL

## On the Disc

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## Step by step

Easy-to-follow guides take you from concept to the final render

Modelling

Artist info

**Mike Campau**

3DArtistonline

**Personal portfolio site** www.mikecampau.com

**Country** USA

**Software used** modo

**Expertise** I specialise in creating still images for advertising agencies and other businesses all over the world. I integrate photography and 3D elements to create images that inspire.

**Software used in this piece**

modo Photoshop

# Blend 2D and 3D

## Motion in Air 2012

Extrude and manipulate SDS shapes, set up a studio environment and render different outputs for compositing in Photoshop **Mike Campau** creative director at SeventhStreet Studio

**The 'Motion in Air' series was created by me to blend a still, yet dynamic, image of a dancer with complementary 3D-sculpted elements.** Over the next few pages I will reveal the techniques I used to achieve one of the images.

The project itself was a very fluid, creative process. While I didn't initially have any sketches or images in mind, I did have a clear concept: to integrate a studio shot of humans jumping or dancing with 3D digital sculptural forms around them. After browsing through my stock photography collection I settled on a selection of images I wanted to work with and thought would fit best together.

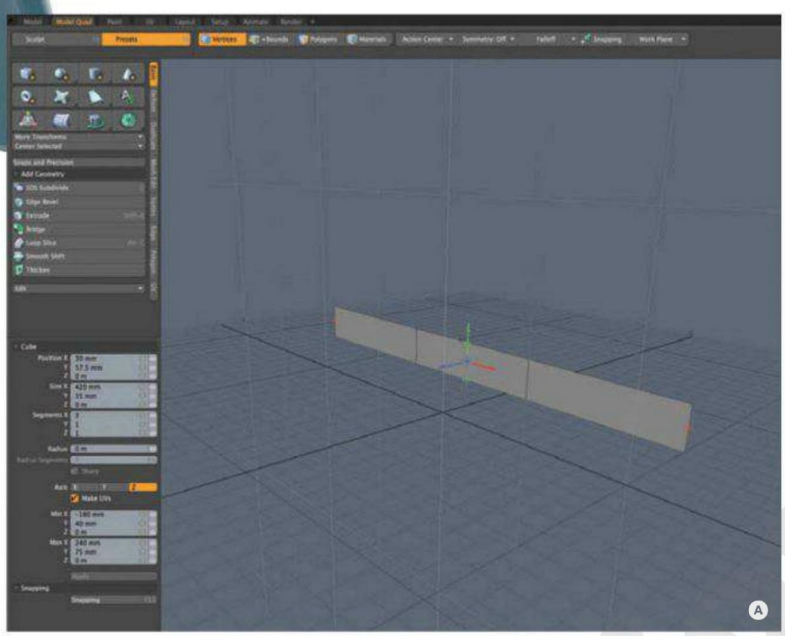
When it came to the 3D stages, since having attended my daughter's dance studio competitions, I was very familiar with the different movements and gestures created during the routines. This became vital when building the shapes in 3D. While dance competitions might not be to everyone's taste, it's very important to ensure you look for reference and research to keep your images authentic.

In terms of software, for the purposes of this tutorial I will tackle the creation of the sculpture using modo, however any 3D program can be used to build and set up these sculptures for rendering. Throughout the steps we will focus on how to extrude and manipulate SDS shapes, set up a studio environment and render different outputs for compositing in Photoshop.

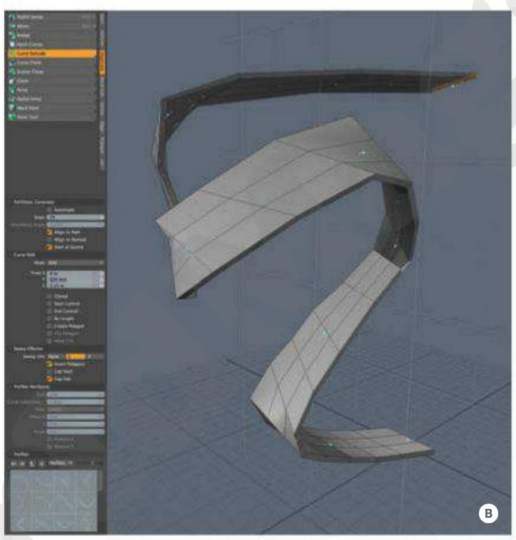
Keep in mind that this is an organic process, so experiment with different shapes and curves to complement the images you're using. The following steps are just guidelines for you to create your own dance image, make decisions on the fly. Try different shapes and directions, don't be afraid to make your own moves and have fun!

## Build the basic shape

Create a smooth and fluid sculpture to emulate graceful movement



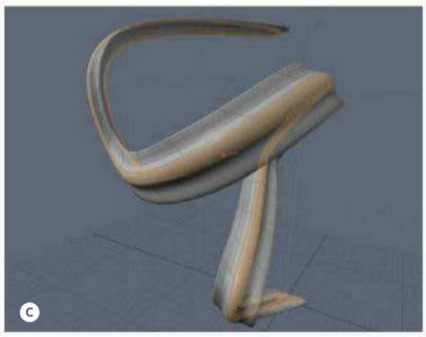

**01 Start with a basic cube** First start off using the Cube tool to create a plane on the Z Axis. Make it with three equal polygons that are twice as wide as tall, this will help us control the shape and flow of the ribbon once it is extruded and subdivided A.

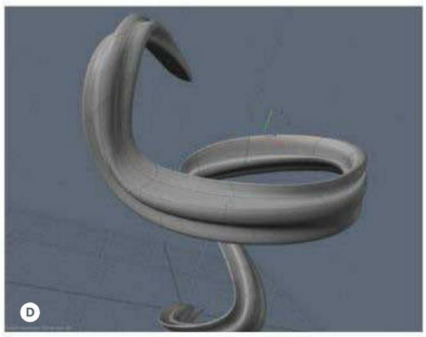



**02 Extrude the shape** Use the Curve Extrude tool to create the overall shape and direction of the ribbon. In this case we used 24 steps, but you can use more or less depending on how long your shape is. Keep a balance between having enough steps for a smooth shape and fewer steps to have more control over the polygons once it is extruded. Also, don't worry if it is too angular, as we are going to subdivide it next B.

# Detail the shape

## Pull, push and bend to define form



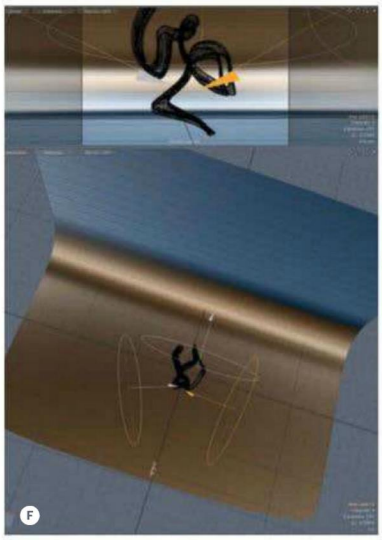



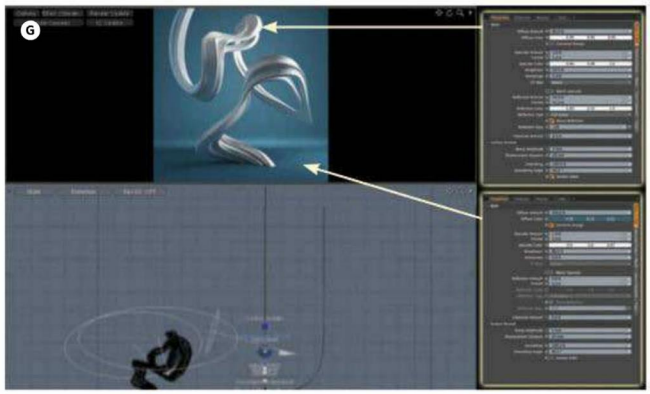
**03 Smooth your sculpt** Now the basic shape has been extruded, hit Tab to subdivide the sculpture and start to define more shape and contours. Select two polygons running down the middle and press L to loop select the rest of the polygons. Now add a bevel to help pull out a central shape. Hit B, click on your selection and drag out until you have a smooth spine running along your sculpt C.

**04 Add subtle imperfections** Using your Item Select tool, grab edges, push, pull and move them around to create more creases and thick and thin portions of the sculpture. For more visual variation in larger portions, use your Soft Drag tool in Component mode and begin to pull and push areas you want to accentuate. To finish off the end portions of the sculpture use your Bend tool to add curl D.

**05 Flesh out the body** To add a little more volume and mass to the sculpture, let's duplicate the mesh and push it back in Z space to get some separation. We want to make this shape different than the original, so we'll select the Push Deform tool and inset it slightly. Then using your Soft Move tool, start to create some variation in your duplicate mesh to help it break free from the main form E.

**06 Build your studio** Now that the sculpture is complete, let's set up the studio environment and materials. We want to match the tonal and textural qualities of the subject in the photograph so keep that in mind when setting up lights and materials. The studio uses a simple sweep and a three-point light setup. This light scheme is a little different than the traditional three-light setup. Here we're creating two side-area lights to be set up symmetrically, one being more dominant in strength (in this case from right to left to match our lighting) and one back light that is kicking into the sweep. This is done in traditional photography to create a glow around subjects F.



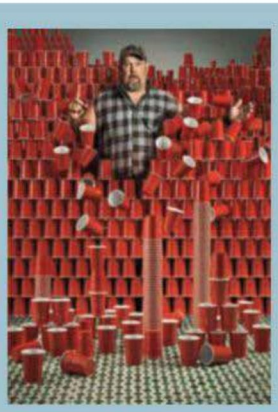




**07 Place elements in the scene** We want to set up materials and colours in the scene. Playing off of the woman's clothing colour and tone, lets make our backdrop a nice diffused-blue colour and the sculpture an off-white material with blurry blue reflections. Making sure the materials in the scene have a high-diffused quality will give everything that soft, milky look. Now use your Preview Render to fine-tune lighting positions and materials to get the final effect G.

## Artist Showcase

### Mike Campau

I am currently the creative director and lead digital artist at SeventhStreet Studio. When I began my career in 1995 was a novice 3D artist at best, but today I am using both my 3D and retouching skills to create images with impact in the world of print advertising. I love layer masks, polygons and am always up for collaborations and personal projects.



***Larry the Cable Guy*** **modo, Photoshop (2012)**
Created this image as part of the 'Comedians' project that I am working on with photographer Paul Mobley. All the cups and studio setup were done in modo, and Larry was shot by Paul backstage before his concert.

***BlackLight*** **modo, Photoshop (2012)**
With contemporary environment and lighting, and a retro colour palette, *BlackLight* harmonises past and present. A virtual studio was constructed using modo and integration of the model was done in Photoshop.

# Composite in Photoshop

## Render out of modo and begin postwork

30 minutes **render time** Resolution: 4,000 x 4,000

**08 Prepare rendering outputs** Now it's time to set up some render outputs to help us in the final composite. I always render out multiple outputs to give more control in the compositing phase along with alpha channels for as many of the objects or materials as possible. For this simple scene we really only need to set up a Final Render Output, Ambient Occlusion and alphas for the sculpture and background. Do this by dragging an alpha output into the material group in your shader tree H.

H

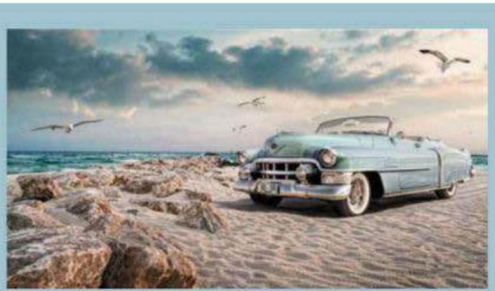
I

**09 Move to Photoshop** After saving a layered PSD file from modo, open it in Photoshop. Use the alpha for the sculpture to create a separate layer for that element, as it will be easier to control composition of the dancer. Now duplicate the Ambient Occlusion render and use it in Multiply mode to help add some more shadow to the base of the sculpture and on the floor. Do this by applying a layer mask and only brushing it in where needed. Next drop in a stock photo of a person (already isolated) and use the alpha of the sculpture to hide and reveal parts of the subject to better integrate it. The more overlap there is, the greater sense of reality is achieved I.

## Colour in everything

A very important key to this image was the lighting setup and use of colours. Not only colours in materials, but in lights as well. Real light bends, falls off and changes colours, which is always a problem for photographers. This problem needs to be added into CG lighting, as CG lighting is too perfect and linear. You can do this in a number of ways. One is to add some colour to your area lights, no light is ever perfectly white, so adding some tone or colour to your lights will help. Also, don't forget about your materials and how the light influences the speculars and reflections. Having these set to pure white will give your objects a fake look, so try adding some colour or tone to your highlights and reflections in the material settings.

J



***Cadillac at the Beach*** **modo, Photoshop (2011)**
This was a proof of a concept to show our client that they could use a CG car instead of the real-deal on-location. The car is 100% rendered in modo and composited into the photographic scene (made up from multiple stock and personal photos).

**10 Make final adjustments** To help create the illusion of reality, let's paint in some shadows cast by the dancer onto the sculpture and vise versa. This will add more believability that the dancer exists in this space. Finally, to make the image sing and add some global colour effects and contrast moves. In this case we will add two layer adjustments. First a Hue/Saturation layer to desaturate (-40) the image overall. Then we will drop in a Photo Filter layer set to Warming Filter 81. Adding some tonal and colour style to a composited image will always help the two elements (photography and CG) look believable together, as you can hide some of their contrasting qualities J.

# I made this...

Incredible 3D artists take us behind their artwork

Artist info

**Damian Buzugbe**
3DArtistonline

**Website** http://threeverywisemonkeys.blogspot.co.uk
**Country** UK
**Software used** 3ds Max, ZBrush, modo, Photoshop

"The fur was generated in modo 401. It was the first time I'd ever tackled 3D fur and now I'm the proud owner of a million images of gorillas with alopecia!"

"I'm happy with the sense of speed and action achieved. Inspired as always by *Star Wars* (the originals) – this time the Endor chase scene. The background is purely photomanipulation and painting"

# Gorilla vs Tiger 2009

This was one of many defining images attempting to sum up the feeling of teens racing on fantastical giant creatures. The intention for this piece was to capture a split second moment between four racers – not only trying to convey the speed of the race, but also the power of these two animals and the bond with their fearless riders!

"The tiger [was sculpted] by Julia Friedl [and] posed and textured in ZBrush. I used decimated assets from ZBrush, rendered separately and composited in Photoshop"

**Software used in this piece**

3ds Max · ZBrush · modo · Photoshop

"As ever the deadline was very tight, hence the sheer amount of Photoshop work used to pull the image together. If I had more time I would have used more 3D environmental elements to bed the characters into the scene"

**Software used in this piece**

3ds Max | mental ray | Photoshop

# Achieve ultimate 3D realism

## Rolleiflex camera 2011

**Modelling**
**Texturing**
**Lighting**

We take you through the main stages of creating a realistic 3D model of this traditional camera

**Eric Cain** is a 3D artist specialising in modelling and visualisation

**I selected this camera as a portfolio production piece while I was a student.** I originally selected this subject because I liked the modern interpretation of the original vintage Rolleiflex camera, and felt the unique design would make for an interesting project. But it quickly became an experiment in realism.

When people knowingly look at 3D art, they often spend their time looking for flaws; anything that gives away the fact that it's a 3D production. If they don't know it's a production, their eyes will still often notice anything that is out of place, especially if the object is well-known.

I began to make that the focus of the production, I wanted to create the camera and have it look as lifelike as possible. There is a huge industry in commercial art, which many feel is less creative than original art, but the skill required to create 3D images so accurately that they can pass as real, is just as artistic as any other.

This tutorial will take you through my workflow and design process from start to finish for this camera production. We will go through modelling techniques, applying UVW mapping, texturing, lighting and finally the postproduction stages.

**Step by step**
Easy-to-follow guides take you from concept to the final render

**Artist info**

**Eric Cain**

3DArtistonline

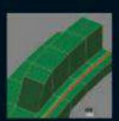
**Username:** cain3d

**Personal portfolio site**
www.cain3d.com

**Country** United States

**Software used** 3ds Max, mental ray, Photoshop

**Expertise** I am a 3D artist working in modelling, texturing and lighting. My passion is visualisation and postwork. I want to make things look as realistic as possible, and that's all in the details!



# Know your subject

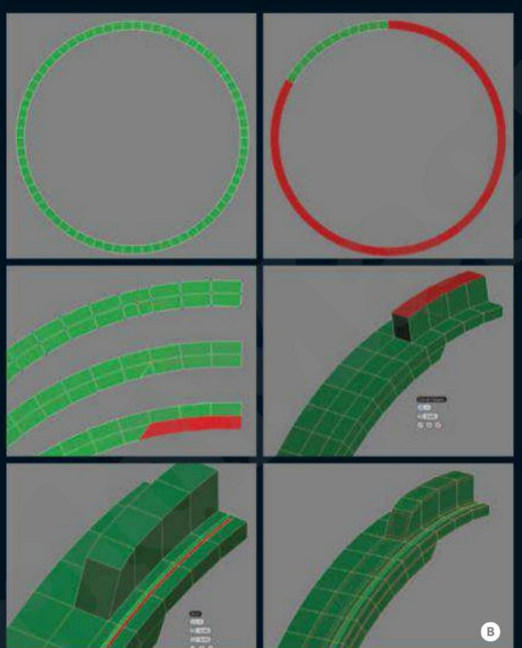
## Start with planning and basic modelling

### 01 Research and gather reference

Spending time to find the right reference is extremely important. You cannot create something from your memory. It's not the overall shape or general details of an object that make it look convincing, it's the subtle details, the ones that are normally not captured in your memory. It's easy to get excited about a new project and jump right in with little or no reference, but in the end this results in a lot of reworking, or an object that does not truly reflect what you were trying to create originally (A).

(A) Gathering as much reference material for your project as possible will ensure the greatest realism

(B) Modelling each part to a precise scale is essential for the final render



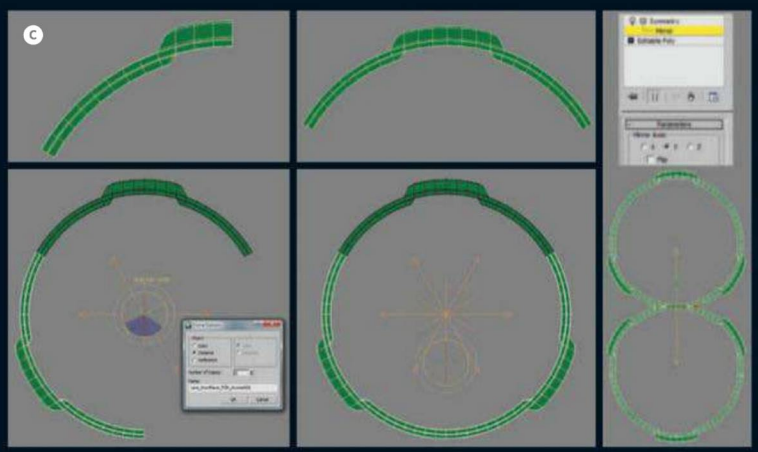
### 02 Build the model

The entire model needs to be built to scale with all proportions being accurate to the actual real-life camera. Anything off in scale is easily noticeable. When working on the double bayonet, I started by creating a 72-sided circle, highlighting 1/6 of the total circle and deleting the rest. I then modelled out the detail in that section of the bayonet (B).

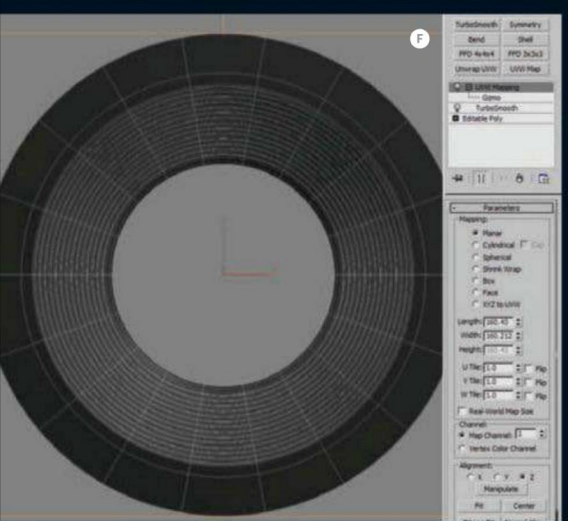
# Logos, texturing and lighting

## Customise the logos and textures for your model

**03 Find symmetry** After modelling that 12-sided section of the bayonet, I used symmetry on the X-axis to create the full 1/3 section (24 sides). Then, using the Symmetry Rotation tool, I duplicated twice more, reverting the top bayonet shape back to the original 72 sides. The next step is using symmetry on the Y-axis to create the bottom bayonet, again 72 sides. This completes the base for the double bayonet on the front. Of course there are many more things to model but this is just to illustrate the importance of working smart. Planning your process will really help you see opportunities to use shortcuts, such as symmetry C.

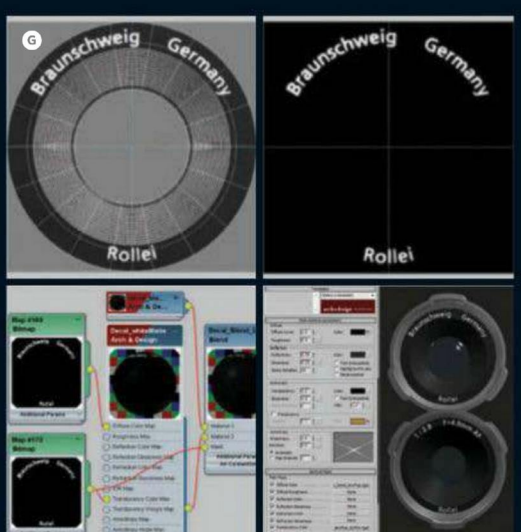


**04 Create text** To create the text for the brand name on the front of the camera I started by choosing Create Splines. I picked Text, then found the font that matched the brand name. A Bevel modifier was applied, then a FFD4x4x4 modifier. The FFD will let you move the lattice points to get the curve we are going for. For the rest of the text plate I modelled around a cylinder to get a perfect half-circle using Edge Extrude. Once that was done I used Symmetry to mirror over the other half on the X-axis D.




**05 Place wires** After having everything blocked in and all the locking loops in place, it's now time to start applying the Turbo Smooth modifier to everything. Depending on the distance from the camera, you can sometimes set the Iterations at 1 or 2, but because this is a very close shot, everything has three Iterations applied so we will not see any faceting E.

**06 Apply UVWs** The next stage was adding UVW mapping to the capture lens. Since the text around this lens is straight on, we can select Planar under the Parameters. Make sure you are looking at your object in the front view, and not the perspective view, to take your screenshot. This screenshot will serve as the template for the next section, as you move this element into Photoshop F.




**07 Create text and symbols** Once in Photoshop, I used the Text tool to generate the branding/test details. I then wrapped that text around the viewing and capture lenses to mimic the reference images. As the lenses are black and the text is white, I used the same image for both the diffuse and the alpha/mask G.

### Be resourceful

Many people have a morning routine, perhaps coffee and a paper. My routine is checking my favourite online 3D sites and forums for the latest news in the industry, new techniques, inspiration from the work of other creatives and so on. Being a 3D artist requires you to be both proactive and resourceful. In 3D there is so much to learn and the industry is constantly evolving, so you cannot rely on a class or a book to teach you all you need to know, and you can never stop learning. You have to be able to research, find tutorials, experiment and figure out how to solve different problems and apply new techniques with each new project you work on. Also, you have to be open to criticism. Without feedback how will you be motivated to keep pushing yourself to the next level?

C You can use symmetry to build the front structure

D Adding the recognisable text is key to adding realism

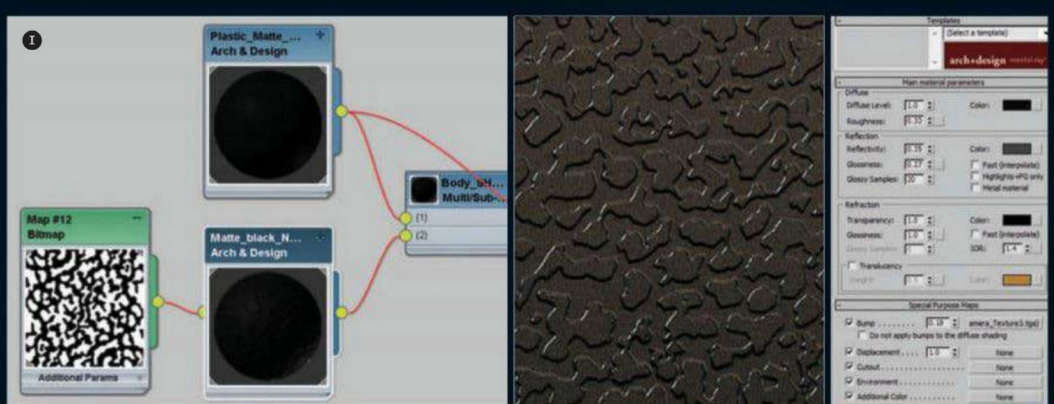
E Apply the Turbo Smooth modifier to all your surfaces

F Create a screenshot template for Photoshop

## 08 Make textures in Photoshop

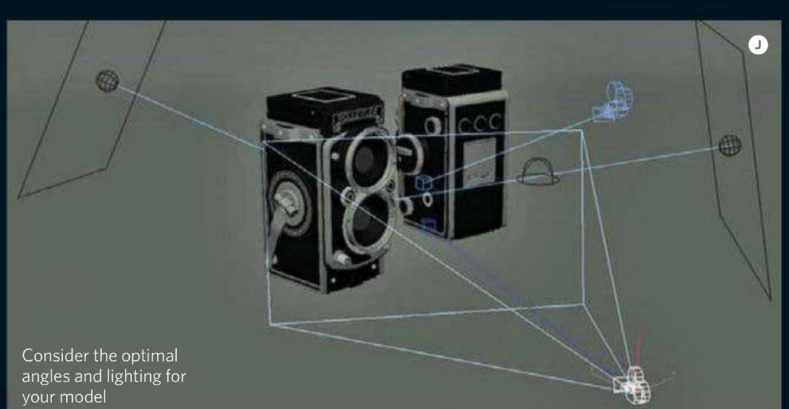
When looking for textures to apply to your model you will mostly only need to visit the well-known texture sites. Sometimes, though, you'll come across something that isn't so common. When this happens, don't be afraid to just create a new texture of your own. This was the case when I was making the texture for the shell of the camera. The original Rolleiflex camera shell was made of leather and then replaced with a plastic for this newer model. The plastic is made to resemble the leather from the original.

I brought a reference picture into Photoshop and drew over it to get a few of the shapes. I then took those shapes, rearranged them and filled up the sheet to be used as a Bump map (H).




## 09 Apply the texture

After creating the texture in Photoshop, you can then move it into 3ds Max to create a plastic mental ray material. After several tweaks from the preset material parameters I was able to get the plastic to achieve a matte appearance with the reflection quality I wanted. Under Special Purpose Maps there is a Bump Map slot, this is where I put in the bump texture I created. I adjusted the amount to .18 to get the desired height of the bump on my model (I).



Consider the optimal angles and lighting for your model

(G) In Photoshop you can use the Text tool to add detail

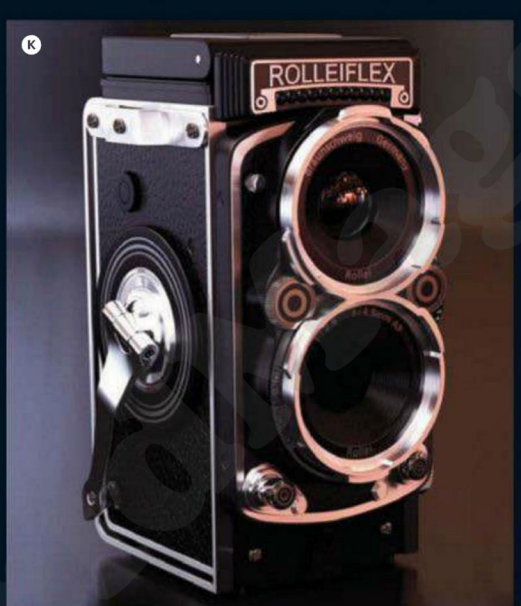
(H) Photoshop is also very useful for making textures

(I) Bring your new textures into 3ds Max and adjust to suit

(K) Adding a HDR image brings even more quality realism

## 10 Lighting and camera angles

I first find where I think will be the best place to shoot from, set my 35mm camera into place and make sure to lock it in. To emulate a real-life studio lighting, I used two target photometric lights. They emit light from the rectangle shape, which I sized to scale with my camera. To create this setup I first researched studio lighting to make sure I would get a real-life studio look. My other light is a Skylight that I used to run my HDR image through (J).




## Attention to detail

When creating real-life objects in 3D, it's extremely important to focus on the details at all levels of the design and production. The original block-out must be sized and scaled correctly and the smallest details have to be included in the model work. Textures are also key, so it won't matter if the model is perfectly clean, if the textures don't look real then the effect will be lost. The lighting and staging help to create the final trompe l'oeil!

The whole goal of realistic 3D art is to create something that looks like a photograph. When I was in school at the Art Institute of Dallas, the senior modelling instructor, Micheal Eudy (aka Polygrinder), always said, "Your work is only as strong as your weakest part." This really taught me that you have to show the same care for creating a small background element that you would show when creating the hero piece. You can't skip over even the smallest detail! Getting most things right won't prevent the viewer from finding the one flaw you didn't fix, so it's worth spending some extra time to work out the kinks.

## 11 HDR image lighting

This step changes the entire mood and feeling of the scene by using different HDR images. The HDR image is used as a light pass in both the Skylight and the Environment map slot. This one pass does not give all the light you'll need, only an environmental feel. Render the other lights as separate passes to give you more control in post should you want to adjust the light colour or brightness (K).

## Artist showcase

### Eric Cain

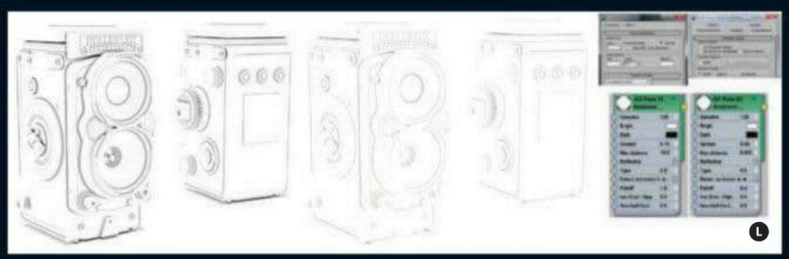
My passion for art started at a young age and my eye for realism and detail was always apparent, whether I was drawing comic book characters or figure studies. I only made the transition into 3D art about three years ago while getting my degree in Media Arts and Animation. But as I moved from 2D to 3D, I simply changed the tools I used to create my art.

***Los Angeles Country Museum of Art*** **3ds Max, metal ray, Photoshop (2012)**
I chose to create the LACMA scene because I wanted to create a whole environment. I was drawn to the intricacy of the staircase and loved the lamps as a focal piece.

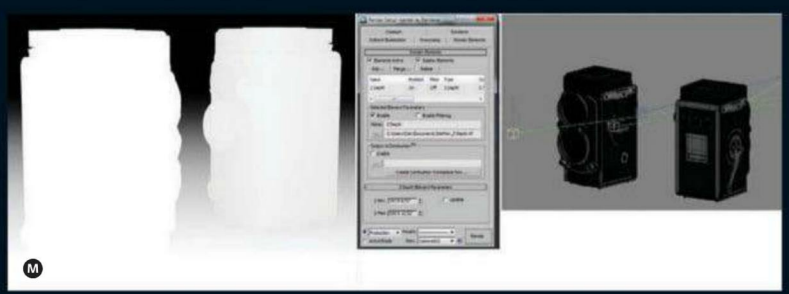
***Low-Poly 1930's Air Compressor*** **3ds Max, 3Point Shader, Photoshop (2012)**
The challenge here was to create a low-poly model that appears to be high-poly. This was achieved by maintaining a strong silhouette that matched the original streamlined design.

# Final rendering

## Bring your model to life with postwork



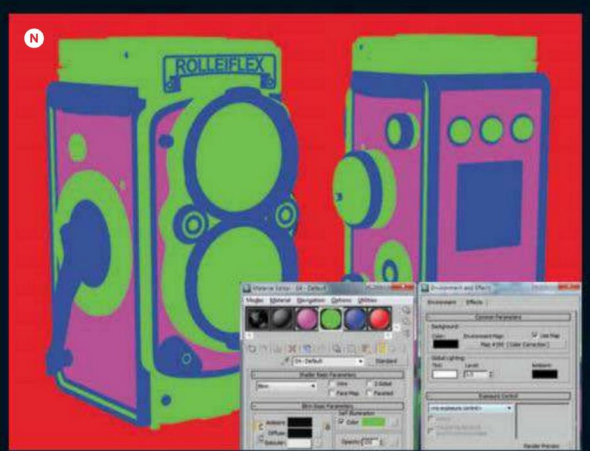
**12 The Ambient Occlusion pass** The Ambient Occlusion (AO) pass is an important step to create realism, and is one of my favourite passes. The AO pass gives us a Dirt map that helps us see where light would be naturally occluded. I typically make two AO passes: one with larger Spread and Falloff than the other. The first is a general shadow map showing where all the darker areas are on the model, and the other is only to show extremely dark areas like fine crevices. I then use this in Photoshop as a multiplier layer in postproduction with a low opacity (L).



**13 The Z Depth pass** I used the Z Depth pass to create the auto-focus look that a real camera would give when taking a photograph. I wanted to achieve a very subtle auto-focus with a slight blur effect to draw attention the camera. Under Render Setup, add Z Depth and make sure to have Elements active. Choose your minimum maximum Depth for the focus area. To get an absolute amount without having to render, you can get out the Tape Measure under the Helpers menu and measure it from your camera (M).

- (L) Make an Ambient Occlusion pass for accurate shadows
- (M) A Z Depth pass adds the quality of a real-life camera
- (N) The RGB Matte pass isolates each material for masking
- (O) Make final adjustments to get the best possible result

**14 RGB Matte pass** I created an RGB matte pass to isolate each material on the model, making it easy to select each material in post for masking and adjusting, such as using blue to isolate the shiny metal parts. To create the RGB matte pass you should use the Material Editor window to create a standard material for each colour. Then under Self-Illumination you need to check the Color box and use pure RGB colours. Disable Final Gather and use the Environment and Effects window to turn off the Exposure Control (N).




**15 Final composition** The last step is to layer together all of the above passes in Photoshop to create the final product. This can be done in many ways, constructing your own layer stack. I keep all the originals on the bottom in case I need another duplicate. I keep my masks (RGB) folder open so I can control and select them quickly, the lighting passes and HDR images are next. Next, the adjustment layer folder is the most important in the final piece. You have all the options to change anything around, colours, saturation, exposure and vibrance can really give your piece a new feel. The AO folder is on top of that, with Opacity at 6-20%. Last add your Z-Depth, Vignette, and a small amount of noise (O).

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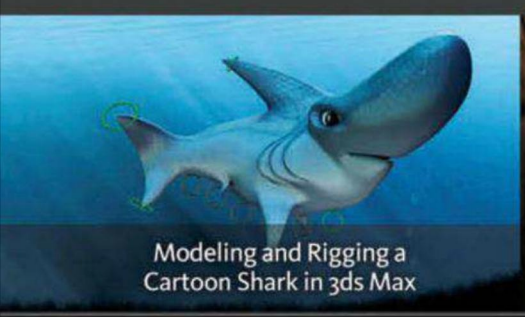
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# I made this...

## Incredible 3D artists take us behind their artwork

Artist info

**Andrew Hickinbottom**
3DArtistonline

**Website**
http://andrewhickinbottom.com
**Country** UK
**Software used**
3ds Max, V-Ray

> *Maria*'s hairstyle was created with simple subdivided poly shapes... a bump map and slightly glossy material

“The latex wasn’t too difficult to create – it’s just a standard reflective V-Ray material. I did have to do a lot of tweaking of the lighting, shader and reflection pane to get the exact effect I wanted, though”

## Maria 2012

I have a talented friend called Serge Birault **(www.sergebirault.fr)** who does great pinups in a distinctive style and has an often-drawn muse called Maria Gibson. He did a quick sketch of her one day and I was inspired to make a 3D image based on it.

**Software used in this piece**

V-Ray

3ds Max

# Visualise architecture using Blender

## House – stage three 2012

In the final chapter of this three-part series, Lech Sokołowski reveals how to apply the finishing touches to your house-build project

**Lech Sokołowski** is a 3D generalist based in Poland

**Welcome to the third and final part of this tutorial series.** If you've missed the previous two parts, I covered modelling a house from 2D plans, properly distributing high-poly vegetation models throughout the scene and also gave insight into Blender's shading and rendering systems.

Over the next six pages I will cover Cycles' rendering settings and an in-depth study of Blender's new shading system. We'll create diverse materials from scratch, later separating them from the final rendering as individual layers. We'll also cover the process of transforming the raw rendering using Photoshop techniques.

While I won't be describing how I've achieved every particular effect for the final image, I will introduce skills such as material creation, proper scene rendering and finishing touches in 2D software. You can then apply these skills to your personal projects, or develop them for use in your professional portfolio.

Shaders
Materials
Rendering

## behind the scenes

Easy-to-follow guides take you from concept to the final render

Artist info

**Lechu Sokołowski**

3DArtistonline

**Username:** lechu

**Personal portfolio site**
www.no-triangle.com

**Country** Poland

**Software used**
Blender 2.62, Photoshop

**Expertise** Lech regards himself as a 3D generalist, although he mainly enjoys the compositing and postproduction stages of a project. He has worked as a freelancer and as a 3D artist at Evermotion. He currently runs his own studio based in Poland.

## On the Disc

- Sample shaders for your personal projects
- Shader descriptions
- Final rendering with postproduction layers

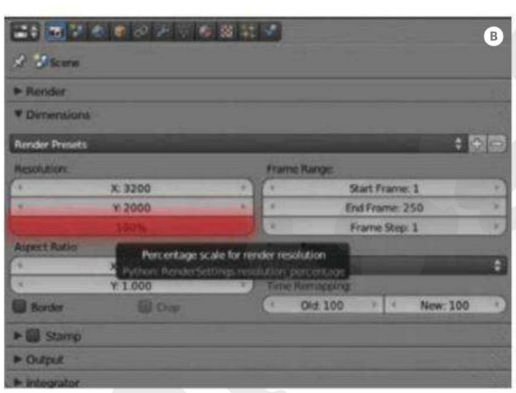
**Software used in this piece**

Blender 2.62 · Photoshop

# Set up

## Review your options

**01 GPU vs CPU options** Using the graphics card (GPU) instead of standard processors (CPU) for the rendering purposes has both its advantages and drawbacks. The positive aspects are of course very good rendering times (often up to ten times faster) and the ability to tweak the shaders or environmental setup in real-time. At the moment we're limited to NVIDIA GPU units as Cycles doesn't fully support Open CL technology, which is used by ATI cards. Another drawback is the GPU RAM limitation, but this issue can be resolved either by proper scene management or by rendering the images on separate layers (foreground, background and so on) Ⓐ.




**02 Basic settings** The Rendering panel is divided into a few categories. The Render tab contains the available computing devices and buttons starting the rendering process. The Dimensions tab has all the settings regarding the image's resolution, the animation's frame rate and so on. The Stamp tab enables us to include various information on the rendered image, such as the lens value or rendering time. The Output tab contains all the settings regarding the file extensions and image compression. The Film tab controls the final image exposure and anti-aliasing settings. The Performance tab gives us control over the geometry calculating methods. The Layers and Post-Processing tabs will be described together in the postproduction steps Ⓑ.

Ⓐ You can choose the rendering method in the User Preferences window under System Settings

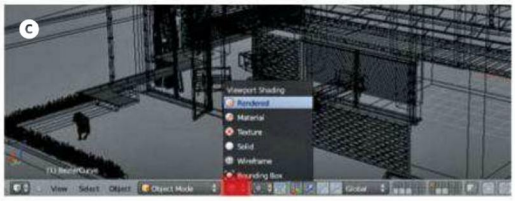
Ⓑ For quick previews, use the slider of per cent scale for render resolution

## Before we begin

The Cycles rendering engine differs quite a lot from the old and outdated Blender Internal. It would be a good idea to learn its basic settings first.

# The shading system

## After adapting the basics of rendering systems, it's time for materials




**03 The Integrator tab** I've purposefully omitted one of the tabs to better describe it now. The Integrator tab contains the most important rendering settings. Sample sliders control the noise levels of the final or preview images. If the value is set to 0, the rendering would continue forever. This works quite well for the previews and you'd rarely need to go above 1,000 for final images (with proper scene setup). Transparency, Bounces and Light Path settings refer to various Global Illumination attributes and I won't cover them in detail. I'd suggest decreasing the Light Path bounces to eight and switching on the No Caustics option. This setup never failed me when I needed a noiseless image in a reasonable time C.

### Problems and solutions

The Cycles rendering system doesn't really have many options to tweak but requires some time and individual testing before it achieves nice and noiseless images. I recommend finding some additional information on the internet about how the unbiased rendering engines work and what rendering or lighting conditions might be troublesome. As most of the unbiased renderers work pretty much the same, reading articles regarding other applications is useful.

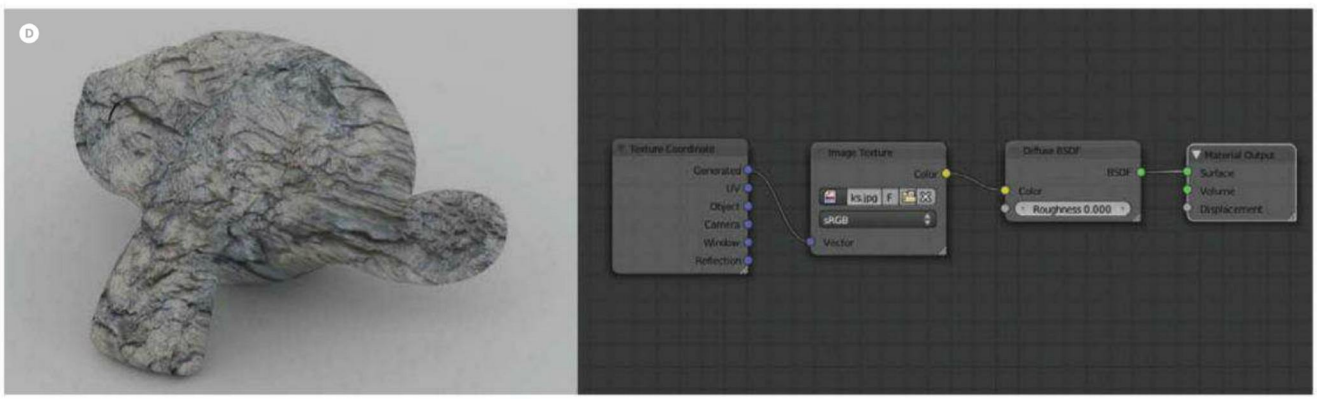
In the last issue I briefly mentioned that Cycles works on a node-based material system, which might seem a little bit confusing in the beginning, but later turns out to be very intuitive and flexible. The key to understanding the main concept of this system is knowing that by joining the nodes inside the editor, we add specific attributes to the base material. For instance, if we create a simple Diffuse shader, we can mix it with an unlimited number of any other kind of other shaders – glossy, glass or translucent. By using more advanced nodes, we can switch off the material's visibility in reflections or camera. The possibilities are unlimited and in the next few steps I'll describe the most important shaders and nodes in Cycles.

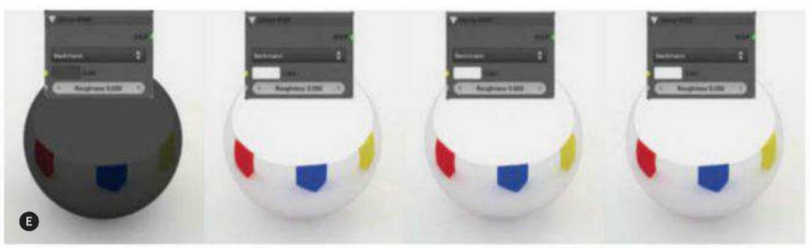
**04 The Diffuse shader** Diffuse is the simplest shader you can use in most of the rendering packages. It's helpful to consider it as a perfect matte layer of the material you're working on. You can determine its colour by applying a specific image texture or assigning RGB values for any particular tint D.

C Remember to set the viewport Shading Mode to Rendered for real-time preview

D The Diffuse shader with image texture and mapping nodes

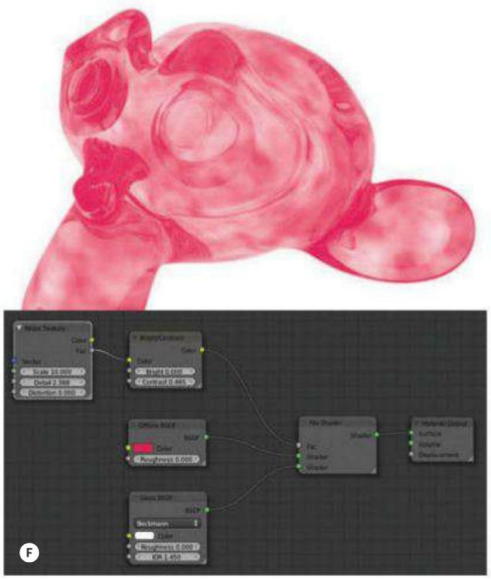
E Examples of different Glossy shaders you can use



**05 The Glossy shader** This shader can be regarded as a perfectly reflective material such as polished metal, or as a coating layer that can be added to diffuse material. This shader has an additional attribute called Roughness which determines the blur amount of the reflections. We can apply image textures to determine both the glossy colour and Roughness factor. Brighter values will give the stronger and sharper reflections, just as darker colours would result in weaker and more blurry ones E.

**06 The Mix Shader** The Mix Shader is one of the most important nodes available in Cycles. It enables us to join two independent shaders based on the Fac value. By default it's set to 0.5, which means that materials will be mixed in equal proportions. Various nodes can be plugged into the Fac slot, for instance we can use a procedural noise texture to randomly mix shaders together F.



# Custom shaders and materials

## Create your own assets to suit your piece

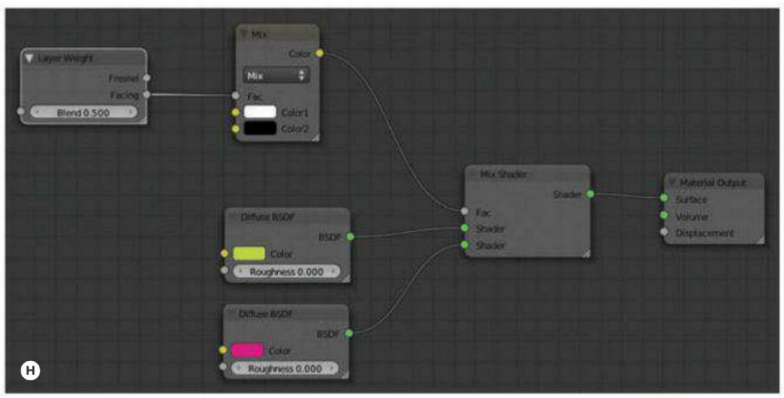
G

Glass shader

Transparent shader

Translucent shader

**07 Transparent shaders** There are three different transparency shaders in Cycles. The Transparent Shader is simple as its opacity is determined by colour (white equals 100% transparency) and can be used in creating alpha transparency. The Translucent shader can be used for creating the matte transparency effect, visible for instance on paper surfaces. The last is the Glass shader, which has a Roughness value determining the blur intensity. IOR value generates the refractions in the glass volume G.



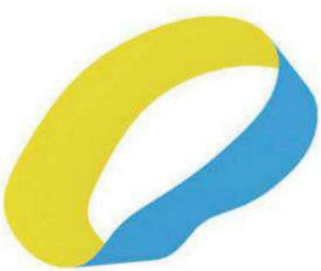

H

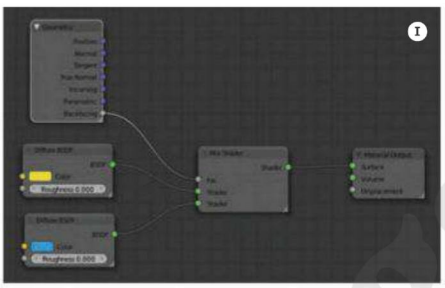
## In summary

With the basic but solid knowledge of the most important shaders and material nodes, you should now be ready to build your own materials. Before you start, it's important to know exactly what you would like to achieve. Take a grass strand for example. If we were to examine it close enough, we'd see that it has two different shaders – Translucent and Diffuse mixed together. After even closer examination we'd notice that each strand has some value of Glossy shader added but with quite blurry roughness. By examining the world around you and applying CG terminology, you can better understand the processes inside 3D applications.

In these few steps I wasn't able to cover all the aspects of the shading system, such as light-emitting shaders or bump mapping, but I've prepared some basic shaders for your personal use and further studies on this issue's disc.

**08 Fresnel and Layer Weight nodes** Now let's move to Input nodes. The Fresnel node is one of the most important when it comes to creating realistic-looking materials. By plugging it into the Fac pin in the Mix Shader, we can now determine the viewing angle from which one of the mixed shaders would be visible. The Layer Weight node works similarly but gives you even more control over this effect, so try both of them when preparing your own materials H.





I

F Glass and Diffuse shaders mixed by using noise procedural texture

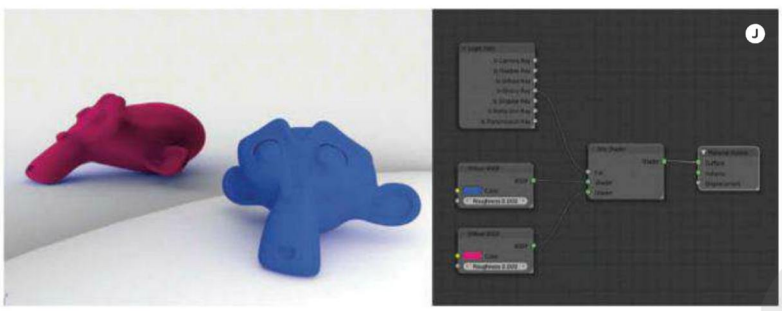
G Three different types of transparency shaders

H A more complex setup where colours are used to control the Fresnel effect

I Two examples of using different shaders and a Geometry node with Backfacing applied

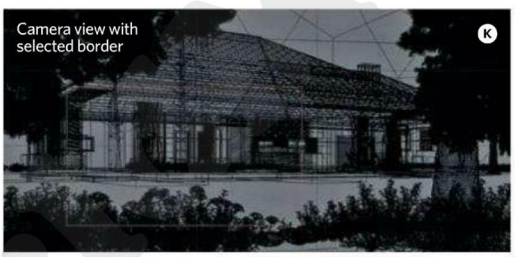
J Remember that similar settings can be tweaked for each selected mesh. Go to Object Options and check the Ray Visibility tab

**09 Create a two-sided material** To create a grass or leaves shader, we can mix Diffuse and Translucent Shaders. When you look at leaves, you can see that they are translucent on one side and more opaque on the other. To achieve this effect inside Cycles, add a Geometry node from the Input group. By using the Backfacing property we can plug it into the Fac slot, so each of the shaders is assigned to its own surface of the model I.



J

**10 The Light Path node** To enhance the materials even more let's now use a Light Path node. Each of its pins, when plugged into the Fac slot of the Mix Shader, determines what would happen to the second (bottom) shade. For instance, let's take two Diffuse shaders – red and blue. Blue would be plugged to the upper slot and red to the bottom. If we choose the Is Glossy Ray property and plug it into the Fac slot, the red Diffuse shader will now be visible in all glossy reflections, but the basic material would still remain blue J.




K

**11 Border rendering** When preparing the shaders, you might want to pre-render parts of the scene to check if everything works. Press Shift+B in the 3D viewport and select which region you'd like to render. This is also useful for noticing errors on the final picture – if the changes aren't too big, you can render the selected region instead of the whole picture and later merge them in Photoshop. To disable bordering select the outline of the camera K.

## Artist showcase

### Lech Sokołowski

I'm an architect by education and 3D artist by passion. Since my youth I have been interested in various forms of expression, especially drawing. My adventure with 3D graphics started during my studies and I've quickly fallen into it. Currently I run my own 3D graphics studio, NoTriangle, and live a happy life in a quiet, mellow region in east Poland.

***Car environment*** **3ds Max, V-Ray (2012)**
An image from a set of 3D environments we've prepared specially for car renderings. This kind of scene can easily be used for commercial animations or other forms of visual presentation.

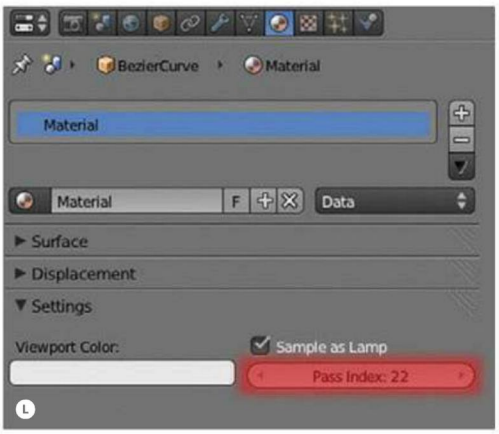
***VFX Studio*** **Blender, Cycles, Photoshop (2012)**
Image showing the inside view of the conceptual project for a VFX studio located in our city. Both the renderings and interior design were created in our studio.

***Checkmate*** **Blender, Cycles (2012)**
A frame from a short animation project commissioned by a client for educational purposes.

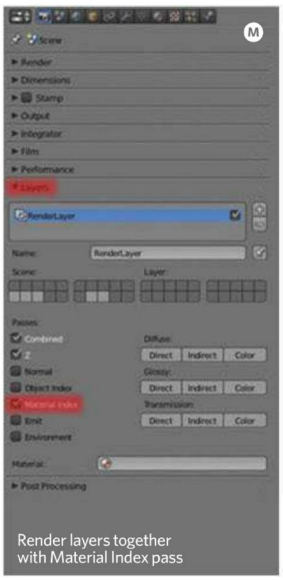
# Postprocessing stages

## Prepare your piece for rendering

**12 Material ID** Quite often objects on final renderings have a different tint, saturation or values than expected. Masking them in Photoshop may take time so we'll use render layers for that. In the Rendering panel go to the Layers tab and enable the Material Index option. Now open the Material panel, go to Settings and change the Pass Index to any suitable number. Repeat this process for every material you'd like to have masked out L.




**13 Final rendering setup** With all objects, materials and the camera set up, we can run the final render. Settings used for this scene are simple. A more important issue is the GPU's RAM. For the best performance I recommend switching off the viewports and restarting Blender. This way we purge the RAM so it can be freely used during the rendering. For this project I was using an NVIDIA GTX 560 with 2GB of RAM M.



Render layers together with Material Index pass

L Note that render layers are available only in the latest Blender build (2.62)

M Bigger resolutions increase GPU RAM usage

N An easy way of merging two separate material masks

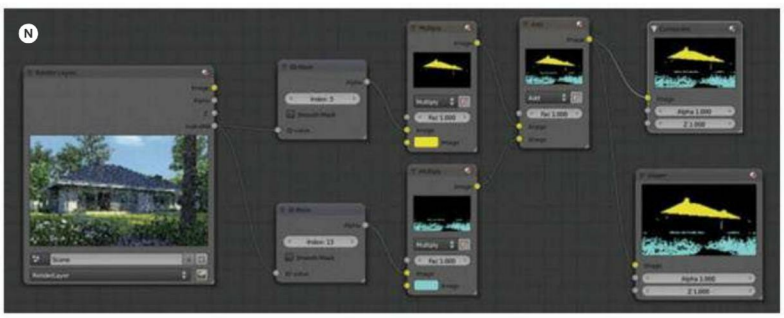
O A quick guide on how to use the Material_ID file

P Schematic showing how to extract a Z-Depth pass inside the Compositing Node editor

Q Small comparison of the raw rendering and final picture

### Final touches

In these final steps we'll learn how to extract Material ID passes and use them in postprocessing along with some useful techniques of turning your raw rendering into a quality final image.



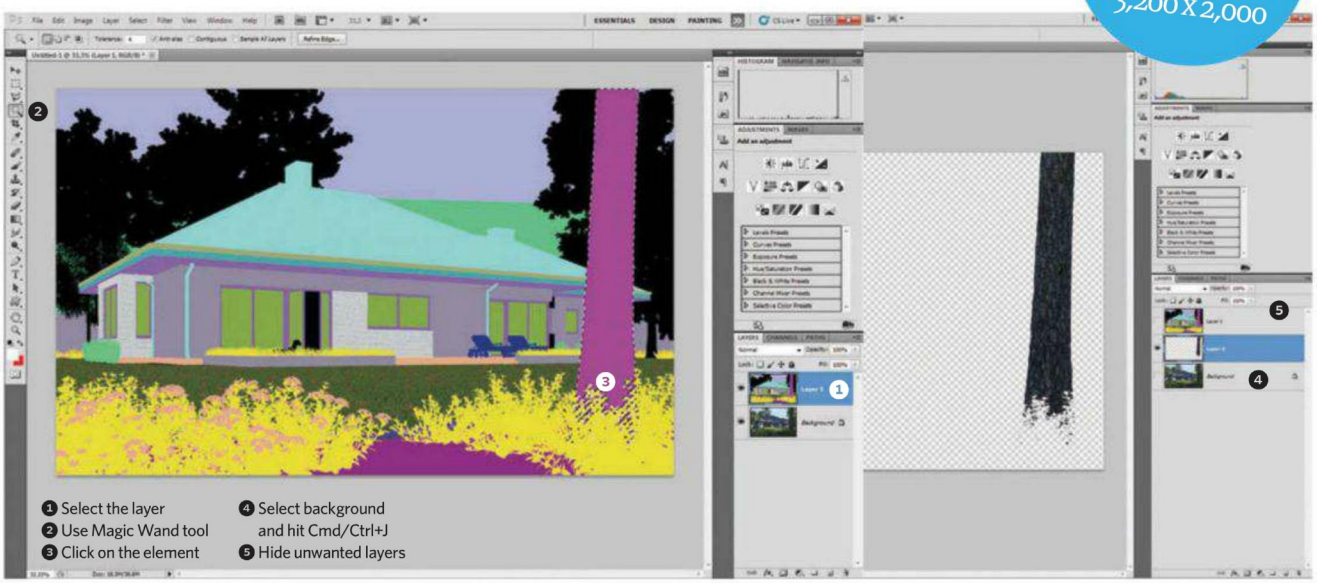

**14 Save the outputs** To extract Material ID, switch to Compositing Nodes. Hit Cmd/Ctrl+A and add an ID Mask node from the Convertor group. Connect it to the IndexMA slot in a Render Layers node. Add and connect a Viewer node for a preview and change the Index number to view masked material. Colorise each mask and merge them together using a Color Mix node. To save the masked output, plug in a Composite instead of a Viewer node and save the image in the rendering window. You can revert to the raw rendering by plugging the Composite node into the Image slot in the Render Layers node N.

# The final steps

## Make selections and final adjustments within Photoshop

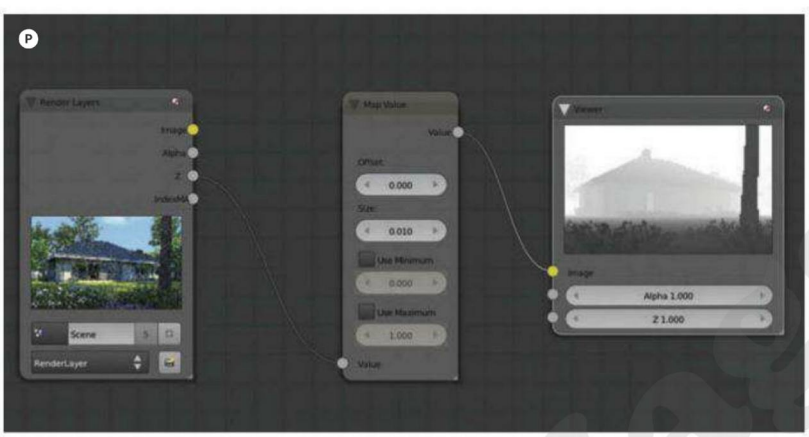
5 hours render time
Resolution: 3,200 x 2,000

O


1 Select the layer
2 Use Magic Wand tool
3 Click on the element
4 Select background and hit Cmd/Ctrl+J
5 Hide unwanted layers

**15 Enhance the rendering** Now move to Photoshop. Start by importing the raw rendering and Material ID image and merge them. To generate a selection, use the Magic Wand tool on the Material ID image, switch to the rendered image and hit Cmd/Ctrl+J. This will save the selection as a new layer that can be freely modified and adjusted. After adjusting all of the materials, paint some light rays and create mood by using a standard brush O.

P



**16 Gain an aerial perspective** By using a Z-Depth pass right from Blender's node editor we can create some perspective. Objects in the background will have a tint similar to the colours of the sky and overall illumination. A Z-Depth pass won't support the alpha transparency applied on leaves for example, so apply carefully so as not to generate any bordering issues P.

**17 Colour grading** Last but not least is the colour grading. I used various adjustment layers, starting with Curves and two Color Balance layers to create both warm cold tints and masked them precisely. Next I added a Vibrance layer to control the image's saturation. Final touches involved creating an additional Exposure layer to brighten up the foreground slightly and one more Color Balance layer for the final tint. Last I merged everything together and applied a Smart Sharpen filter to enhance the overall detail Q.

Q

## Final thoughts

Even though this whole tutorial was separated into three quite big chapters, we're sure you can appreciate that a lot more could still have been added. I trust you understand it was quite challenging to cover every single aspect of the image we've created here, but even so, I really hope that with this series many of you have been inspired to try Blender for yourselves. Best wishes and happy blending!

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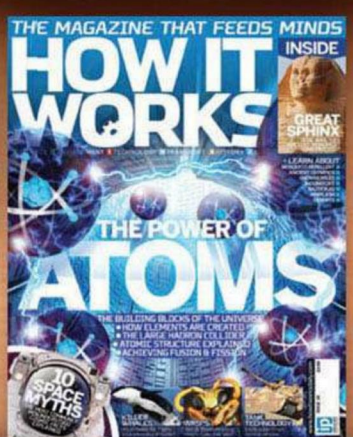


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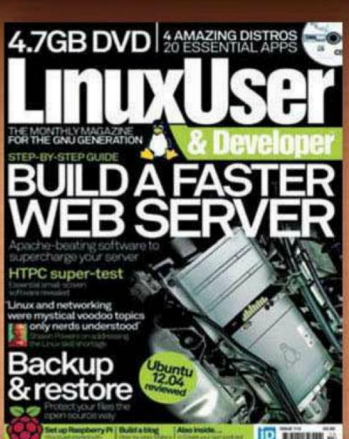


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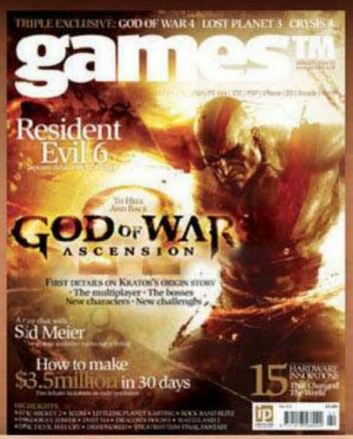


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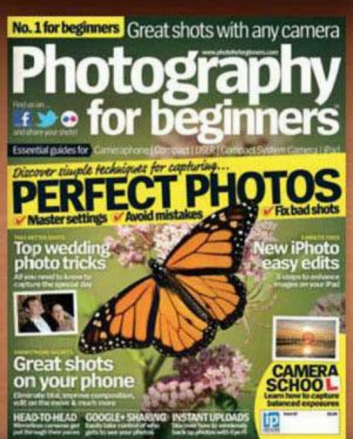


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Create realistic images starts with solid image-based lighting techniques

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# HDR image creation in Photoshop and Maya

"Create your own set of resources with this Masterclass from Digital-Tutors"

**When lighting our 3D scenes, one of the greatest challenges is getting our lighting to look absolutely real.** Matching all of the subtle light and colour interactions that we see in the world around us is an incredibly difficult task. This is especially true when rendering 3D objects that will be combined with live-action footage.

Rather than trying to match all of the real-world lighting by hand, we can take advantage of a technique called image-based lighting to take care of most of the lighting work for us. As the name implies, this technique uses an image of our real-world environment to provide realistic illumination to our 3D environments. However, there is one major caveat: most image file formats simply do not contain enough luminance information to accurately represent the lighting seen in the real world. So to capture the full luminosity range of the world around us, we rely on a special image format known as a high dynamic range image.

High dynamic range images (commonly referred to as HDR images or HDRIs) are created using a multi-step process, which we will discuss in the following tutorial.

Compared to the human eye, a photographic camera is only able to capture a very limited range of luminance values. That is why certain areas of a photograph may look overexposed, while other areas of the same image can appear underexposed. So to create a high dynamic range image, we start by photographing our environment at several different exposure values. Each of these exposures is responsible for capturing a small part of the total luminosity in the scene. By using the Merge to HDR function in Photoshop, we can assemble these different exposures into a single high dynamic range image that contains the full spectrum of lighting information present in our environment.

To successfully capture these different exposures from your camera, there are a number of steps you must take. First, you will need a camera that allows independent control over the ISO, the shutter speed and the aperture size (also called the f-stop). When capturing the various exposures of your HDR image, you want the ISO and the f-stop to remain fixed, using only the shutter speed to control the exposure.

To aid in capturing your environment, you will need a mirrored chrome sphere, which provides a near 180-degree view of your surroundings. An inexpensive chrome gazing sphere from your local yard or garden store will work perfectly. You may need to cut a hole in the bottom of your sphere, enabling you to place a stand or tripod underneath.

Once you find a location, the first step is to mount your camera to a tripod and place

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your chrome sphere directly in front of the camera. The tripod is very important, as you need your images to be as still and as sharp as possible. As you have probably guessed, you will be able to see your own reflection in the chrome sphere, meaning you will have to paint yourself out of the images using Photoshop. If you have access to a telephoto lens, you can place the camera much further away from the chrome image probe. This should make your reflection much smaller, making it easier to paint yourself out of the images.

As stated earlier, you want your ISO and your f-stop to remain fixed across all exposures, using only the shutter speed to control the exposure of the image. Start by setting your ISO to about 500, and locking your f-stop anywhere from F8 to F19 depending on the brightness of your scene. Now you can adjust the shutter speed until you achieve the proper exposure. Once you get an image at the proper exposure, increase the shutter speed by about two stops and take another picture of the image probe, being careful not to bump or move the camera during the process.

From this point, decrease the shutter speed by two stops to get back to your correct exposure. Decrease the shutter speed by another two stops in order to achieve an overexposed image. You should now have three different exposures that can be combined into a new HDR image. You will then need to repeat this process from several different angles in order to fully capture the entire 360-degree image probe environment.

You will use Photoshop to generate your HDR image by going to File>Merge to HDR Pro. In the dialog window, load up the images you wish to assemble and Photoshop will automatically generate an HDR image from the individual exposures. You can now use the Clone tool in Photoshop to remove your reflection from the chrome sphere. Repeat this process for any other image probe pictures that were taken from different angles.

Once you have constructed your HDR image probes in Photoshop, they need to be unwrapped using a program called HDR Shop. After unwrapping all of the HDR probe images, you will need to bring them back into Photoshop, stitching them together to create a seamless spherical map which can now be used for Image Based Lighting within Maya.

Open your 3D scene in Maya and go to the Render Settings window. Here you can click on the Indirect Lighting tab and create an Image Based Lighting environment. Now just plug in your HDR image, turn on Final Gathering and you'll be amazed at how great your renders look using this image-based lighting workflow.

For more in-depth explanations and insights on image-based lighting, be sure to check out the Digital-Tutors Creative Development HDRI Image Creation in Photoshop and Maya with Garry Lewis tutorials included with this issue!

A Making your own high dynamic range image, gives you greater control over your creative process

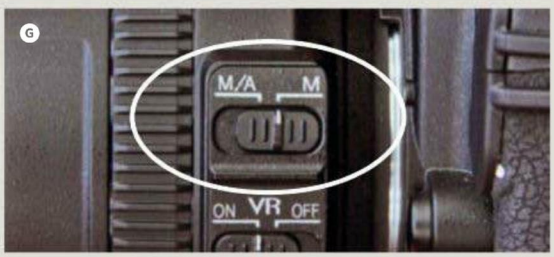
B Ensure the ISO and f-stop is fixed when taking multiple exposures so there is no inconsistency in your shots

C You will need a simple chrome sphere in order to capture a 180-degree view for your capture

D

E

F




G

## Auto bracketing on your camera

Many higher-end cameras include a feature called auto bracketing, which will automatically capture a range of exposures when you hold down the shutter release button. This helps reduce the likelihood of accidentally bumping or moving the camera by eliminating the need to manually adjust the shutter speed in between shots. Different cameras offer varying levels of auto bracketing. Most high-end cameras can capture at least three different exposures through auto bracketing, while some more superior cameras can auto bracket nine exposures or more.

D You will need a good camera, a stable tripod and a mirrored chrome sphere

E Picking the right location is important for the mood of your lighting and overall effect

F Ensure that you disable any auto-focus setting on your camera

G Lock your ISO to about 500 and your f-stop to around F11

H Capturing the chrome ball environment at several different exposure levels

I The cleaned and cropped result of the chrome sphere image

J Here six different exposures are being merged into one single HDR image

## Learn to create your own HDR images

### 01 Gather the best equipment for the task

Creating your own HDR images for 3D lighting requires a few pieces of photography equipment. First, you will need a medium to high-level camera (preferably a digital SLR camera) and a stable tripod. You will also need a mirrored chrome sphere, which you'll photograph in order to capture a panoramic view of your environment. You can pick up an inexpensive chrome gazing sphere from you local garden or yard store D.

### 02 Scout for a good location

The lighting of your shot can have a dramatic impact on the mood of your entire scene. You need to consider just how you will be using your HDR image. Morning, evening and outdoor illumination, for instance, will typically provide strong contrasts between the lights and shadows of this real-world environment. When used as an image-based lighting source, these strong lights and deep shadows can add a great deal of depth, realism and sharpness to your 3D renders E.

H

### 03 Camera considerations

When capturing your environment, you will need a digital camera (digital SLR is recommended) with independent controls for ISO, f-stop and shutter speed. Disable any auto-focus settings on your camera to ensure that the focal point doesn't change between exposures, and ensure that your white balance has been set properly for the environment you will be shooting F.

### 04 Set up ISO and f-stop

When capturing the various exposures of your environment, you want the shutter speed to be the only thing that changes between exposures. ISO and f-stop should remain fixed across all exposures. Start by locking your ISO to a setting of around 500. Now lock your f-stop to a setting between F8 and F19, depending on the brightness of your environment. At this point, you will be relying on the shutter speed settings to control the exposure of the image G.

### 05 Capture the environment

Place your camera on the tripod and place your chrome image probe in front of the camera. When photographing the image

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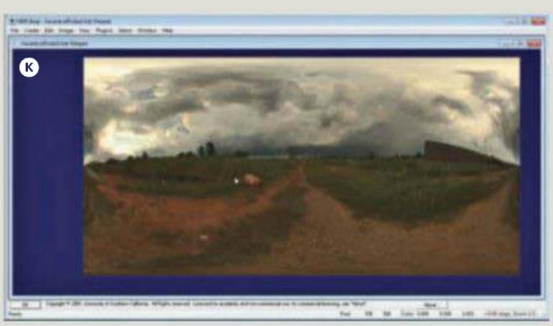


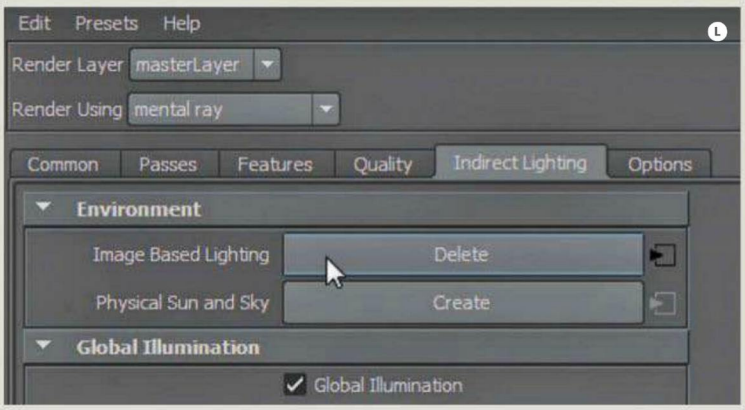


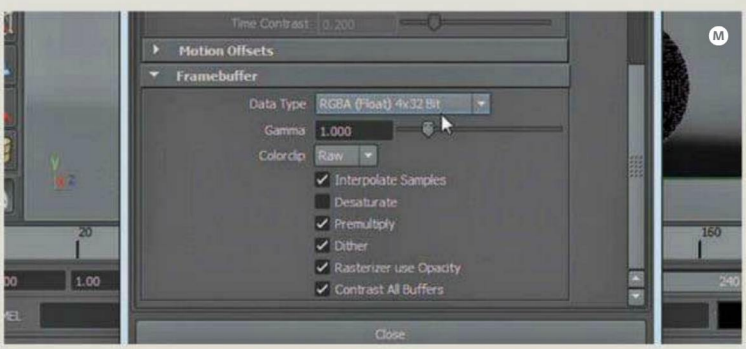


probe, start with a high shutter speed, which will give you an underexposed result. Now for the next exposure, decrease the shutter speed by two stops, being careful not to bump or move the camera in the process. Continue decreasing the shutter speed over the next several exposures, until the images look very bright and overexposed. Most HDR images are assembled from three to eight different exposures. With more exposures, you are providing a greater range of luminosity data that can be written into your HDR images. Again this stage is important in deciding the kind of render you want to achieve H.

K The chrome sphere image has been unwrapped using HDR Shop

L Your HDR image will be used in conjunction with an Image Based Lighting scene within Maya

M Ensure that the Framebuffer for Maya is prepared to output a 32-bit image

## 06 Clean up the images

Once you have finished photographing the image probe, you will need to go through the process of removing your reflection from the various exposures. This can be done quite easily with the Clone tool in Photoshop. You can also take this opportunity to crop out any parts of your image that are outside of the chrome sphere. The images should be cropped so that the outermost pixels of the image probe are barely touching the top, side and bottom boundaries of the canvas I.

## 07 Merge to HDR

At this point, your various exposures are ready to be merged into a single high dynamic range image. Within Photoshop, go to File>Automate>Merge to HDR Pro. In the dialog window, navigate to the folder containing your images and select the exposures you wish to merge together. Photoshop should now automatically merge all of your exposures into a single HDR image J.

## 08 Unwrap the image probe

Now that you have assembled the HDR image in Photoshop, it is time to unwrap the image using an application called HDR Shop. Save your image from Photoshop in a .HDR format, and open the image using HDR Shop. Within HDR Shop, go to Image>Panorama>Panoramic Transformations. In the Panoramic Transform window, set the Destination Image to Latitude/Longitude, then press OK to unwrap the image. This unwrapped image can now be saved out in a HDR format for Maya K.

## 09 Apply Image Based Lighting in Maya

Now you are ready to use your HDR image for lighting purposes within Maya. Start by opening your Maya scene and going to the Render Settings window. In the Indirect Lighting tab, click the Create button next to Image Based Lighting. You can now plug your unwrapped HDR image into this newly created Image Based Lighting node. In the Render Settings window, enable Final Gathering to see the results of your image-based lighting L.

## 10 Render HDR images from Maya

In the Maya Render Settings window, go to the Quality tab and at the bottom of the window you will find the Framebuffer section. Expand this area and change the Data Type to RGBA (Float) 4x32 Bit. In the Render Settings Common tab, set the Image Format to HDR, which will enable Maya to render in a high dynamic range format. This enables you to gain greater control over the exposure and shading of your render when you open it in an application such as Photoshop M.

### Image probe vs fisheye lens

Using chrome image probes offers an inexpensive and fairly lenient approach to capturing your environment. However, you could use a fisheye lens on your camera as an alternative to the chrome sphere. The fisheye does offer benefits such as faster setup time, and because you are not photographing a chrome sphere, there's no need to paint yourself out of any reflections. The drawback is that the fisheye lens and other required equipment are quite expensive compared to the chrome image probe, and use of the fisheye lens requires a deeper knowledge of your camera's specs if you want images to stitch together.

# 3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, Unity, modo, V-Ray and 3ds Max

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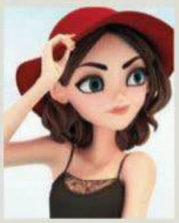
The advisors



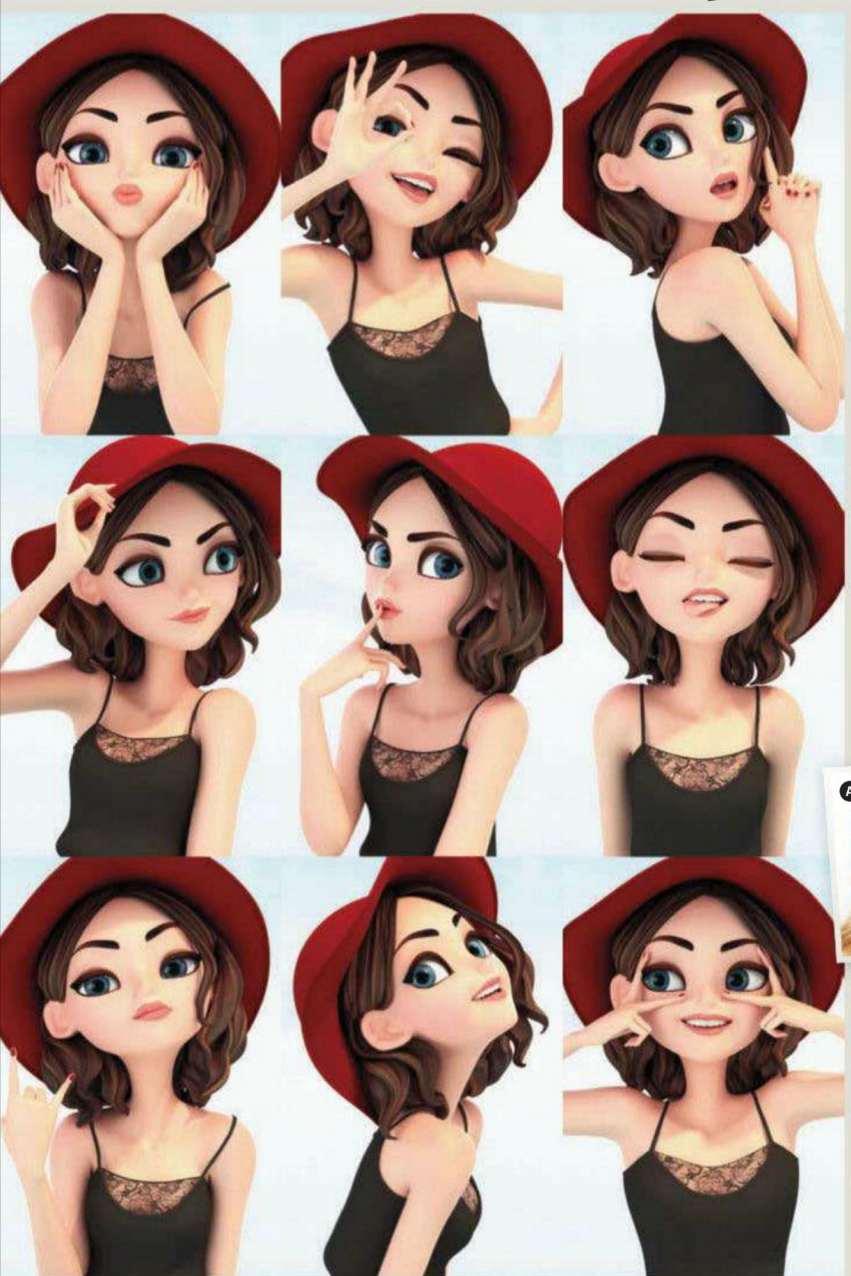
### Maya

**Yinxuan Li Dezarmenien**
www.tyanim.com

Yinxuan Li is a freelance CG artist who specialises in character design. Realistic expressions are the topic up for discussion in this six-step Q&A

**Engaging expressions**

# Blend Shapes in Maya



> How do I achieve realistic facial expressions in my character designs?

**Conveying convincing expressions through your character's face, much like posing the rest of the body, is vital to creating engaging images.** Which software you choose to achieve your goals is up to you, however, what is important is references. Having photographs or a mirror close to hand will help your creations come to life.

The way I approached this task was with a modo and Maya workflow. The modelling, texturing, lighting and render was completed in modo. Maya was used for rigging, skinning, posing and facial expressions. While this short Q&A won't cover every part of the workflow, it will provide you with the techniques to create and tweak Blend Shapes created in Maya to enable you to create several different facial expressions for your character.

Although it won't always be necessary to create lots of different emotions for your creation, experimenting with different emotions can produce interesting results that will add variety to your illustrations. What's more, once you have created them, they can also form the basis for a new illustration.

My image *Photomaton* (left) is a compilation of my exploration in facial expressions, inspired by the photobooths of Paris. I had already created a CG character to feature in a series of images called 'Life In Pink', so she will be my subject for this tutorial.

## 01 Source references

Have a think about what emotions you would like to convey in your character. Once you've decided, search online on stock photography sites and through your own photos to collect some shots. Also bear in mind that there are many different books on the subject of facial expressions, so between that and a mirror, you can never be stuck to find the right look you're after.

Once you have collected your images, it's time to begin the sketching stage. While I work mainly in 3D, I still prefer to start out using a pencil and paper – I feel it helps to clarify my ideas and is quicker than 3D for going back and making changes A.

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## Unity
**Roald Høyer-Hansen**
www.rockandroald.net

Roald considers himself an all-round 3D artist, having worked with concept art, modelling, texturing and animation. He has a big interest in game design

## ZBrush
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www.wix.com/riesconacho/illustracion/home

Nacho is a talented artist with a love for sculpting in ZBrush and then performing post-production magic in Photoshop. Learn some of his tricks here

## 3ds Max
**Paul Hatton**
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A 3D artist, modeller, animator and graphic designer, Paul currently works for leading design services company C A Design in the east of England


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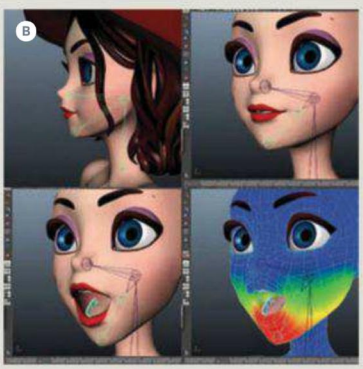

## 02 Base mesh and bones

I opt for a simple solution that involves creating a few bones and then skinning them with a free Maya script called PM_heatWeight, written by barnabas79, which you can find on CreativeCrash.com. This works like a light tracer, from the bones to the mesh. The result is a basic skinning that's easy to refine. I also created a key on every bone at Frame 1 in default position. A few frames later I will set a new key on X, Y, Z, rotation and translation.

After posing the bones the way you want them, select the mesh and duplicate it. Naming your mesh makes things easier when in the Blend Shape window B.

## 03 Add eye expression

Next we will create the Blend Shape for the eyelid: when the eye looks up, down, left and right is four different shapes. After that we will do a rotation on the eye, the lid will follow and deform accordingly. In order to do this, work in the vertices level. Under Tool Settings>Soft Selection click Soft Select. Under the Falloff mode dropdown menu select Surface. Finally play with the slider Falloff Radius to move more or fewer vertices. It's pretty easy to set up. I did all the eyelids' shapes using this method.

The eyelashes are modelled separately to the eyelid. Once created, I duplicated and modified them using the same method. I also used another Maya script, abAutoRig, written by crumbly, which you can find on CreativeCrash.com. This script enables you to create the symmetry of your Blend Shape, so you can only focus on one side of the face C.

## 04 Place more shapes

Now add the modified mesh, which we kept aside on the clean mesh, and create the Blend Shapes. Select all the modified mesh, then select the clean mesh, with all this selected go to the menu: Window>Animation Editors>Blend Shape and select Edit>Create Blend Shape. All your Blend Shapes must display on a single horizontal line. Click Select above them, go to Channel Box, and rename them as you please. Do the same for the lashes and test your Blend Shape by playing with the vertical sliders D.

### Practise makes perfect

Personally I think the most important thing is to draw and keep practising. No matter the technical side or the tools, Maya or any other script, in the end it's most important to understand how the body is working and how the muscles pull and stretch our body. Always be curious and try to learn new things. Also, I'd like to give a thumbs-up to the very talented guys who created these amazing scripts that help artists so much.

## 05 Link your shapes

The Blend Shapes of the eyelid and lashes move independently, so stick them together to follow the eyelid. To do this, use the Set Driven Key method. Keep your Blend Shape window open and go to Animate>Set Driven Key. In the Blend Shape window click Select, regarding the eyelid Blend Shape then in the Set Driven Key window click Load Driver. Do the same for the lashes but this time click Load Driven.

On the Set Driven Key window, select Face_blendShape. Then b_eye_up_L on the Driver (the left lid looking up). Select Eyelash_blendShape, on the Driven and click on c_eye_up_L (the left lashes looking up). Check that your selected Blend Shape is at 0 on the Blend Shape window, if it's okay then click Key in the Set Driven Key window. Then move your selected Blend Shape to 1 and click Key in the Set Driven Key window. Do the same with the eyeball rotation used as Driver and the eyelid Blend Shape as Driven E.

## 06 Make tweaks

Now all the Blend Shapes are done and working, start posing your character using the reference you prepared earlier. Obviously you may need a few more Blend Shapes, but you'll get a pretty close result after a bit of attention. Use the Soft Selection tool for the final tweaking and polishing stages, pushing the volume and controlling the shape F.

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Realistic scenes

# Sculpt terrains in Unity

## How can I create picturesque terrains in Unity?

**Creating realistic terrains in Unity isn't rocket science, but as with most 3D work, it will take some time to get right.** Not only are reference images important, but having a library of good-looking trees, rocks, textures and other props is crucial to get impressive results. A tablet is also handy for terrain sculpting.

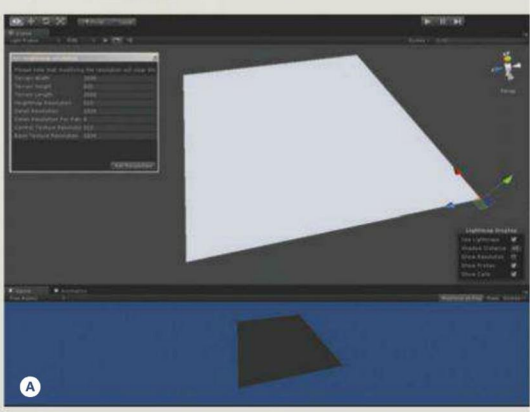
Sculpting basic terrains in Unity couldn't be easier, though, as the built-in terrain engine offers sculpting features similar to those found in programs such as ZBrush and Mudbox. The limitation in Unity is that you can only sculpt the terrain in its vertical axis, as the core system is based on greyscale heightmaps. This means you can't sculpt caves and other concave features, and in heavily distorted areas of your terrain you can experience some texture stretching. With this in mind though, a good workflow should start with sculpting the main terrain features using the basic sculpting tools and then adding fancy details such as rocks, cliffs and custom-imported 3D objects last. This is usually how it's done in game engines nowadays, but hopefully we'll see some major improvements to this technology in the not-so-distant future.

Just as important as sculpting the basic terrain geometry is painting quality textures onto it. These textures should be as tileable as possible and the fewer you use the better, as they tend to slow down the process by adding drawcalls to your scenes. You can also blend these textures together, so in theory four core textures could give you plenty of variations.

Not only limited to sculpting and painting textures, the Unity terrain engine also enables you to paint trees and detail objects such as grass and rocks onto your terrains. These objects are automatically added to the terrain system's level of detail calculations, so this makes creating dense forests and detailed landscapes a breeze.

Creating terrains based on real-world data is also possible by importing heightmaps into Unity. This is an invaluable feature if you're making a game or scene that needs to be as accurate as possible, as it can produce some extremely realistic results.

Clever users of Unity can add to its core features by writing their own plug-ins, and since the terrain engine has been lacking some major ones such as normal maps and river/road generators, there are quite a few free and cheap ones out there. A quick search on the Unity Asset Store and Google will give you access to some of these features, adding to the already robust toolset.




### 01 Creation and setup

We create the terrain base object by selecting the Terrain menu and choosing Create Terrain. We now have a terrain object in our scene, but before we start sculpting we need to adjust the terrain object's base settings using the Set Resolution menu. This is basically where we set the physical scale and resolution of terrain, textures and heightmaps. I suggest playing around with these settings to better understand how they work A.

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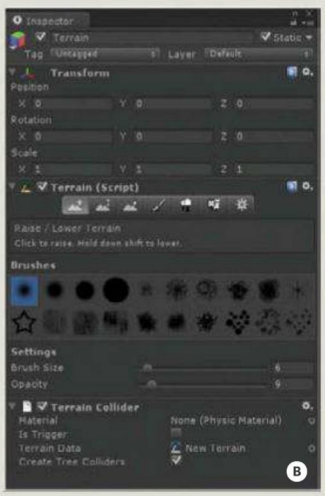
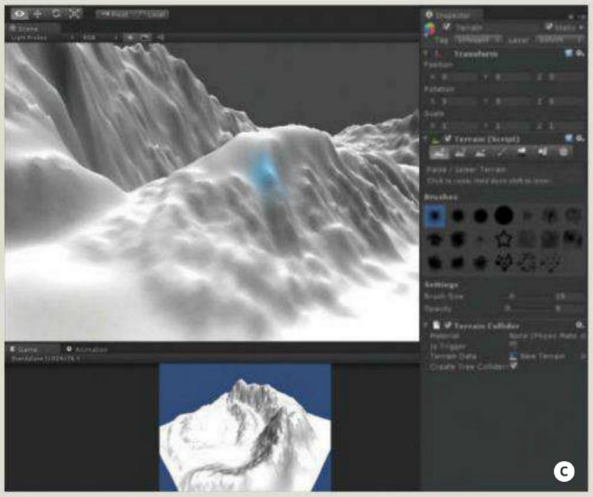
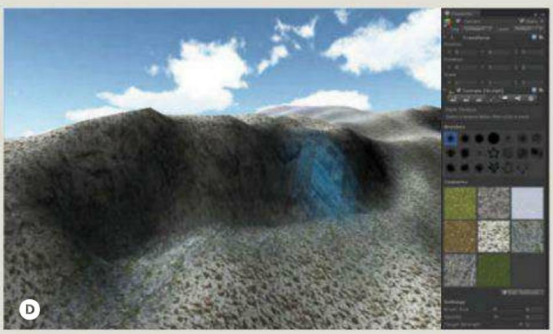
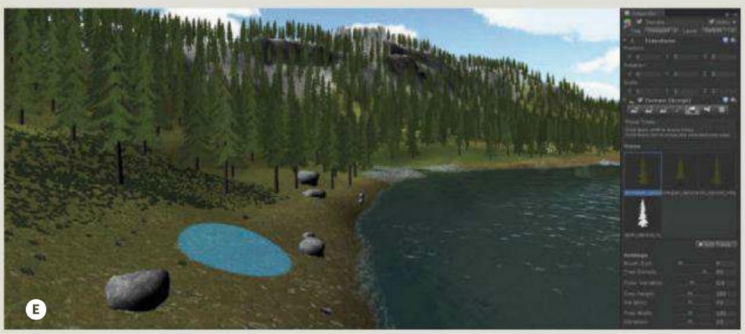



## Importing External Terrain Data

A quick and easy way to generate realistic-looking terrains is to import a greyscale heightmap from dedicated terrain generators such as Terragen, World Machine or Geo Control. These programs are extremely powerful and can generate some incredible terrains methodically, based on complex mathematical algorithms. When importing these into Unity though, using Terrain/Import Heightmap-Raw, you must make sure the measurements of your Unity terrain matches the external terrain. Not paying attention to this minor detail is guaranteed to give you unexpected and imprecise results.




## 02 The Terrain Component

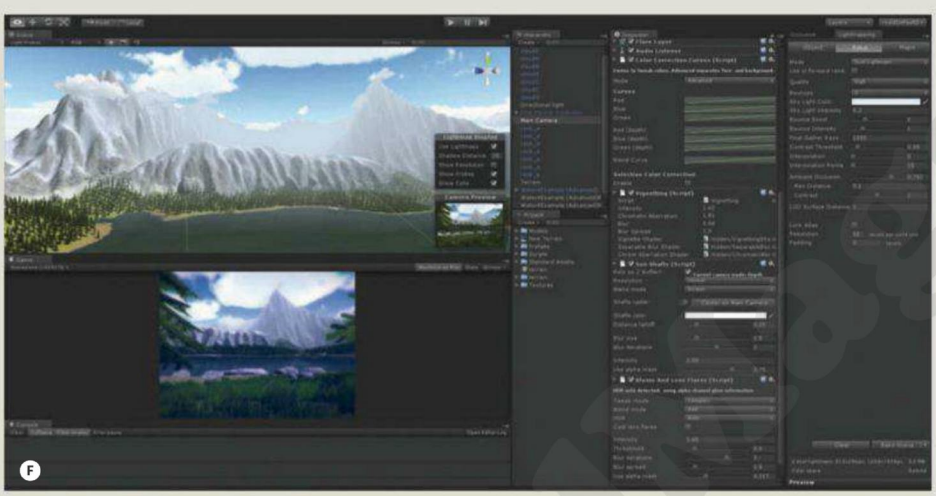
Selecting the terrain object in the scene gives us access to all the various terrain tools and some important terrain settings. This is where we define which textures, trees and detail objects to use and, depending on the tool, this is where we choose which brushes to use. There are 20 built-in brushes, but we can also add our own custom brushes. The terrain settings are mostly used for optimisation and controlling the final result B.

## 03 Initial sculpting

Picking the Raise/Lower Terrain brush, we can now start sculpting our terrain and, based on the brush settings, the terrain object can slowly be shaped to our liking. Pressing Shift while sculpting lowers the terrain and adjusting the opacity affects the strength of the brush. To be able to see depth and details in our terrain better, it's also a good idea to add a shadow-casting light in our scene C.

## 04 Add textures

With the main features sculpted, it's time to add some textures to our terrain. Selecting the Paint Texture tool in the terrain component, we can now add the textures we want to use by hitting the Edit Textures/Add Texture button. The first texture we select will cover the entire terrain, so in this case we will select a grass texture to begin with and then paint over with other textures later on. A skybox is also added in this step D.




## 05 Apply details

Selecting the terrain and choosing Place Trees in the Terrain Component, we can now add trees using the Edit Trees/Add Tree button. All the trees should use the Nature shaders to be able to work properly, and they should preferably be made into prefabs with a simple capsule collider. We will also place some rocks and grass in our scene using the Paint Details tool and finally add a small lake using the standard Unity water E.

## 06 Final polish

Our scene is now nearing completion, but let's add some fog and clouds in the distance and a couple of image effects for added realism. Fog can either be added as an image effect or by going to the Edit/Render Settings menu. Adding a blue tint while playing around with the fog opacity can add to the realism. For this scene we're also adding some minor colour correction, bloom, lens vignetting and a sun shaft effect F.

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# Finishing touches

ZBrush, Photoshop

## How can I improve my ZBrush renders in Photoshop?

**There's no doubt that the latest version of ZBrush offers a whole range of advanced render settings.** However, as an illustrator, Photoshop is still a very relevant part of my everyday workflow. It provides more flexibility and, in terms of production, enables me to get the most out of my time. In the ZBrush BPR, it's easy to export all the render passes separately. From there you'll be able to play with them in Photoshop. Very often a bit of attention in postproduction can provide different results to what was offered in the original ZBrush render.

While you must follow some basic rules to get a balanced final image, in terms of light, shadows and colours to complement the model, you can then go on to add originality to the image by tweaking all of these aspects further.

Over the following six steps we will look at how to improve the model's representation, learn how to compose and use all of the render passes and combine them with some extra layers that give us the chance to modify colour surfaces or textures easily.

Photoshop, or any other similar program, will be an essential tool to create your final image, whether it's for an illustration, concept or character design.

### 01 Add textures in ZBrush

We will texture the model in two ways: by polypainting and adjusting the material's settings. First fill the model with a light yellow colour as a base. Then, using Alphas and browns, spread some stains to emulate the shell's surface. Use the Cavity Mask option on the Masking subpalette to darken the wrinkles and depressions a bit.

Now let's tweak the material. Here I used the default: SkinsShade4. The technique is to add extra detail and colour to the model's surface using an image loaded on the Surface Bump picker. Import that image as an Alpha on that picker and adjust the Canvas Bump size slider, so we will have a fake geometry based on the Alpha texture that's applied to the whole canvas. Now, choose a colour for the Cavity Color Picker and adjust Cavity Colorize, Cavity Radius and Cavity intensity sliders to colorise the cavity surface. Check how it affects the material in the Material Preview and use the Best Render to check the result A.

### 02 Import render passes

Still in ZBrush, use one white sunlight as a main illumination and a Lightcap for the blue reflection. Then render the image using Best Render first and BPR after. On the BPR I rendered the model without shadows – I also exported a Flat Render. Now in Photoshop, import all the render passes we created in ZBrush: Ambient Occlusion, Shadows, Image (without shadows), Mask, Flat and Depth renders. Manage layers as shown and place Depth pass on the Channels palette B.

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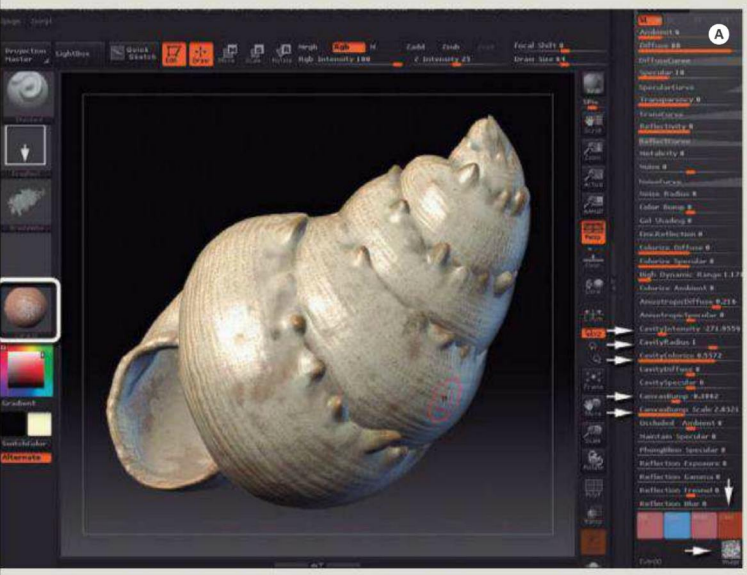
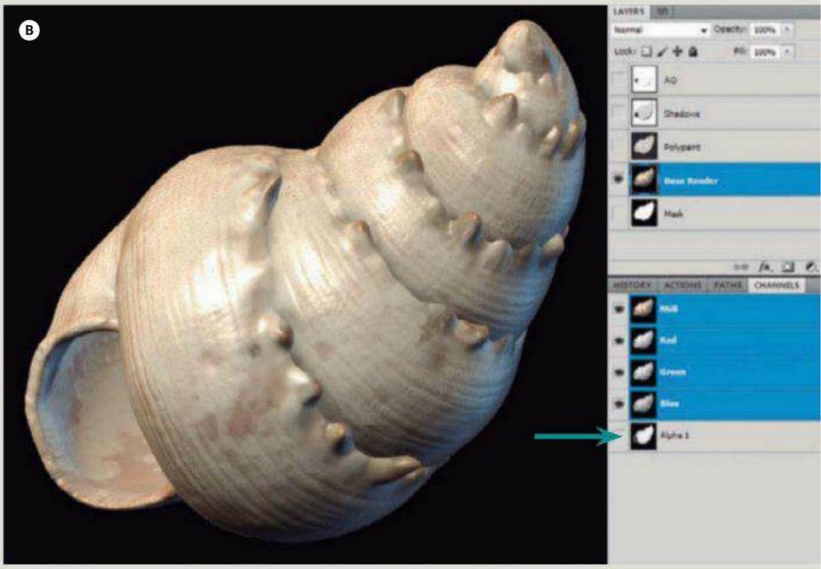
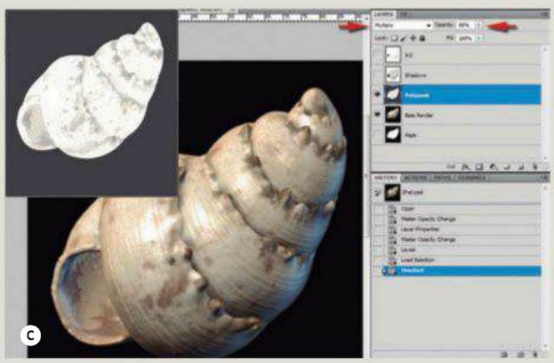


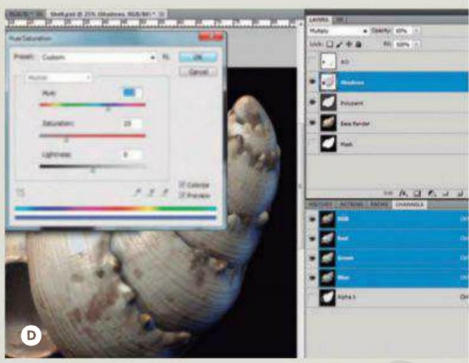

## 03 Enhance the texture

Let's start with the Photoshop editing. To enhance a bit of the render's texture, we'll use the Flat Render Pass (Polypaint). Set it to Multiply layer blending mode and decrease its Opacity to 85% – now we will have a sharper stains texture. In some cases it's a good technique to adjust the colour of that layer to add more tone variations to the surface using a Hue/Saturation adjustment C.




## 04 Insert shadows

Now select the Shadows layer and change its blending mode to Multiply. Repeat the Hue/Saturation adjustment, as mentioned in the previous step, activating the Colorize option. We will colourise shadows according to the environment light – in this case I opt for blue, which is the same as one of our render lights. Adjust the opacity of the layer to reveal the surface a bit D.




## Sculpting the model

This shell model is a good candidate to sculpt using the default 3D meshes you get in ZBrush. 3D meshes are good allies to start sculpting simple forms that enable us to have a good base for our model or specific subtool.

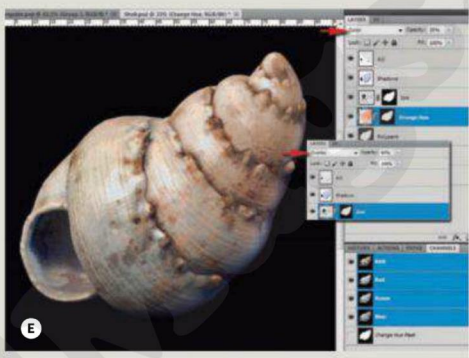
In this case the Spiral 3D will be perfect. Before converting the mesh into a polymesh, we will have the chance to transform the properties of it using the initialise subpalette that you can find in the Tool menu.

Each 3D mesh has its own settings to play with – this means we can change the settings of the mesh to suit our purposes, setting its form, coverage, mesh density and so on. When you've achieved the desired form, convert it to polymesh and it's ready for sculpting.

## 05 Bring in colour and texture

Next we will modify the colour surface and add more texture. Photoshop enables you to enhance a lot of renders using different blending modes and painting techniques. It's handy to have a decent stock of custom brushes to achieve different finishes and effects for this step.

First we create a new layer, place it over the Polypaint layer and underneath the Shadows layer. With an orange tone we paint some strokes on the shell's surface to blend them with the surface. Change the layer's blending mode to Color and adjust its opacity to get better integration. Now, adding another layer, include more stains and imperfections with a black colour. Change the layer's blending mode to Overlay and set its opacity accordingly to suit E.




## 06 Apply the background and DOF

In order to add the background, it will be necessary to add a mask. This render pass will be useful to make quick selections differentiating the model from the background. Using the Magic Wand tool, select the shape of the shell and then use the selection to create the layer's masks – one for each active layer. Place a new layer below the rest and fill it with the desired colour. Here I added two additional layers – one to create the blue texture and the other to fade it a little with the gradient. Next, duplicate all the layers and merge them. Finally, using the Lens Blur option, add the depth of field effect. For this we will use the Depth channel we exported from ZBrush, selecting it on the Lens Blur Source selector F.

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3ds Max, V-Ray

# Realistic materials

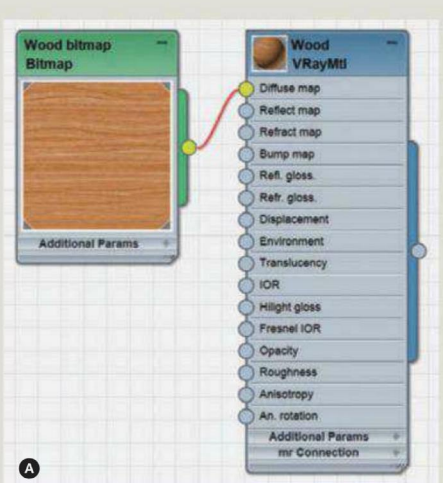
## How do I create physically realistic materials with maps?

**Here we will focus on using different maps to create realistic diffuse, reflection, refraction and bump elements.** Instead of relying solely on a bitmap in the Diffuse slot, we can really start to drill down into the finer details of our materials. For example, rather than relying on a uniform reflection amount, we need to realise that materials don't perfectly reflect their environment (with the exception of mirrors, of course).

In order to re-create materials found in the real world, it's important to look at what's around you for inspiration. Studying your surroundings, taking note of how light interacts with surfaces and objects, what the reflections look like as well as the imperfections of the surfaces, will help when bringing life to your models.

In addition to observing real-world materials, you should also take some time to build up a large collection of reference photos to help you through your projects. What's more, you should ensure that they're clearly labelled and organised so you can find what you're looking for quickly. Your reference library can then be added to in a flexible manner.

Please also note that these techniques are not restricted to V-Ray; they can easily be transferred to other renderers such as mental ray. Don't be afraid to experiment and keep in mind that you may need to do a fair amount of tweaking to get your materials right.



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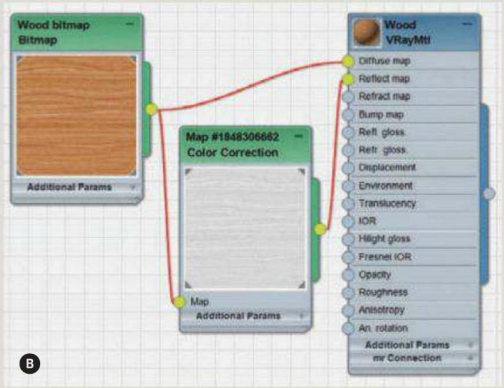
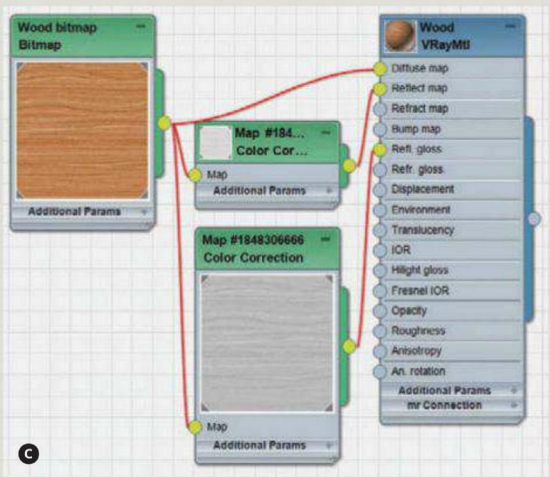
## 01 Begin with a Diffuse map

In the 3ds Max Material Editor, create your V-Ray material. Note that we're using the node-based Slate Editor, quite simply because it's the best. Drag from the diffuse slot and let go. Then navigate to Standard>Bitmap and load your image in. We're using a Wood bitmap with a grain. This bitmap now forms the base layer of your material. Note that without any reflection or refraction to your material, V-Ray will use 100% of this bitmap. Rendering your material now will result in a very flat outcome A.

## 02 Add reflection

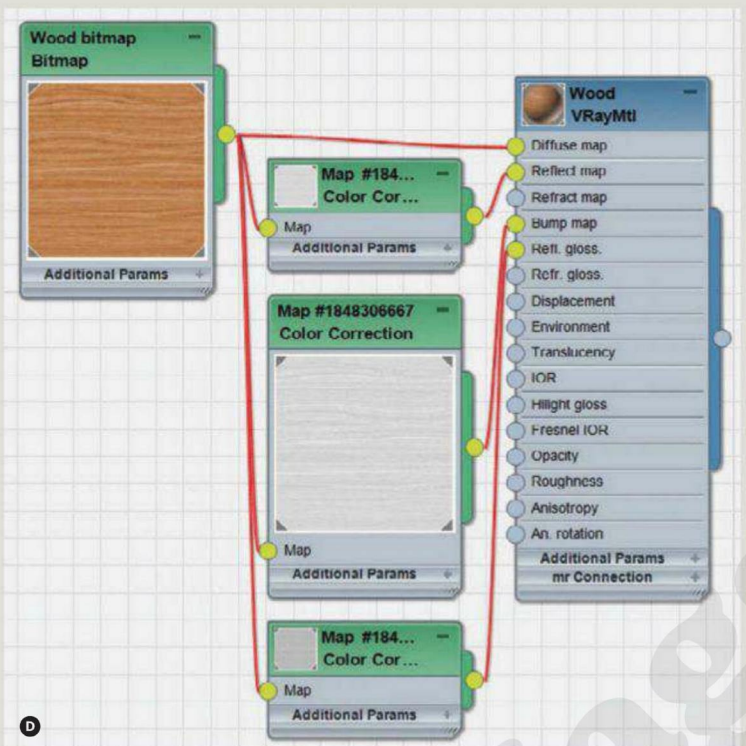
The wood we want to create is reflective so we need to keep that in mind as we go. We'll use a Greyscale map to determine the reflection amount and generate this map from the original bitmap. The best way to do this is to insert a standard Color Correction map between your VRayMtl Reflect map slot and your bitmap. Set the Color Correction to Monochrome and adjust the lightness. Closer to white will result in a more reflective surface B.



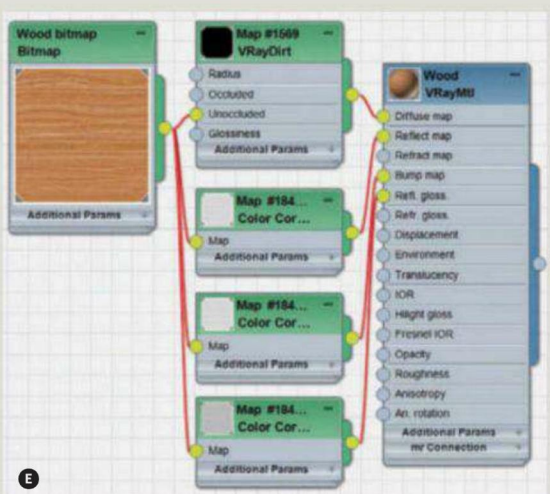

## 03 Apply reflection gloss

Now our reflection has a blur effect. V-Ray refers to this as glossiness. We will therefore use the same technique as Step 2 to create a greyscale image to determine how glossy the wood is at different points of the surface. Doing this adds in the necessary imperfections to create the realism we are after. Note that the closer to white you go, the more glossy your reflections will be C.




## 04 Place a Bump map

The next map we are going to look at is the Bump map. This will add in a depth to our wood because it is not a perfectly flat surface. By using a greyscale version of the original bitmap we can ensure that the Bump map is related to the grain of the wood. Use the same Color Correction map and link it up to your Bump map slot. The closer to white your map is, the deeper the bump effect you will get D.




## 05 Use ambient occlusion

The final detail to put in is the ambient occlusion. This essentially brings out all of the shadow detail that wouldn't normally get picked up. We can do this quickly and easily using a VRayDirt map. We can insert this between our original bitmap and the Diffuse map slot. Make sure you attach the Unoccluded slot to your bitmap. Inside the VRayDirt parameters you can set the radius of dirt and its occluded colour, as well as other settings E.

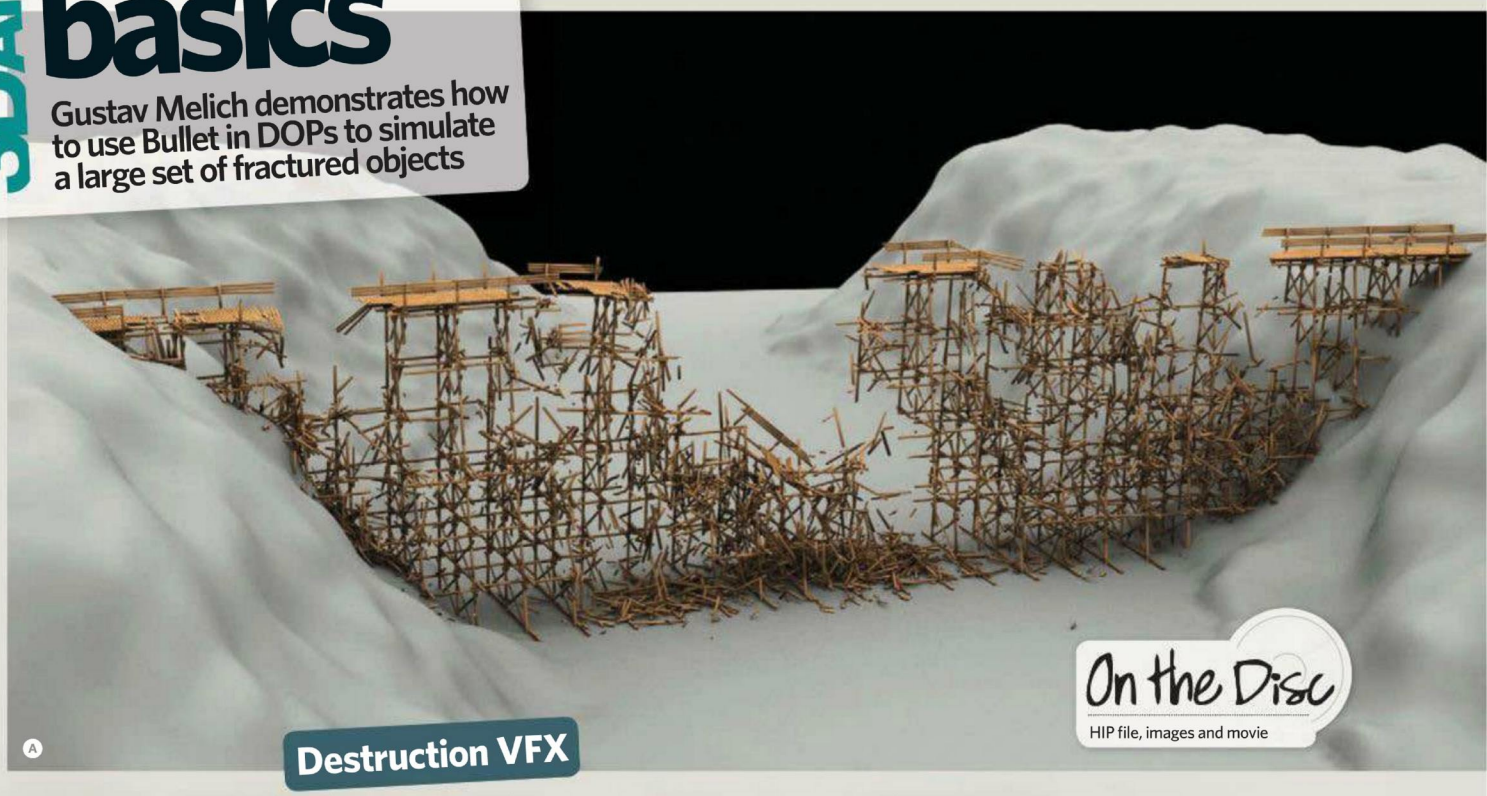
## 06 Options for map creation

You will notice that I have kept pretty much everything contained within the Material Editor of 3ds Max. Many artists like to create these individual maps within a photo-editing programme like Photoshop and insert them into 3ds Max that way. However, it's great how quickly and easily you can create these maps using the colour correction tools. Using 3ds Max also means that you don't have to store multiple maps for each bitmap image, which greatly speeds up the workflow F.

3DArtist

# Back to basics

Gustav Melich demonstrates how to use Bullet in DOPs to simulate a large set of fractured objects



On the Disc

HIP file, images and movie

A

Destruction VFX

# Rigid body simulation with Bullet in Houdini 12

We will learn how to create a destruction scene, including modelling, fracturing and dynamic setup

**Rigid Body Dynamics (RBD) is one of the most commonly used tools for destruction effects.** Today all commercial 3D animation packages include a RBD solver. Some of them good, others better. Houdini's native RBD solver in DOPs is a very robust solver, which can generate very realistic-looking RBD simulations. However, it has difficulty with large sets of objects. That's why it's great that Side Effects decided to fully integrate Bullet into Houdini 12. Bullet is a commercial dynamics engine originally developed for games, known for easily handling tens of thousands of objects fast. Implementing Bullet with glue constraints support really gives users a very powerful toolset to create fantastically effective destruction shots.

This tutorial was inspired by one of the Houdini 12 demo videos from Side Effects, where features of the newly implemented Bullet solver were being presented. We will build a wooden bridge with a road on top of it connecting two mountains, using the new Bullet solver in DOPs to completely destroy the bridge in a convincing render.

The bridge will be built methodically from simple boxes, modelling only a cross section and then copying it around multiple times, applying minimal transformations. The mountain will be modelled from a simple grid by extruding areas, smoothing and applying noise-based displacement. Multiple versions of the mountain geometry will be created. One for collision, a slightly expanded one for selection and a subdivided one for rendering. Since the bridge and the mountains overlap, the overlapping part of the bridge will be grouped by using the expanded version of the mountains. This is necessary for the dynamics setup, so different collision relationships can be set up for various parts of the bridge.

When something gets destroyed it usually breaks up into a lot of smaller chunks. The process of breaking up geometry is called fracturing. There are two different ways of fracturing: pre-fracturing the geometry at modelling time or using dynamic fracturing. The dynamic fracture process is driven by the dynamic simulation and it occurs during the simulation. Even though pre-fracturing can be a time-consuming process and requires extra disk space, it gives a lot more control. For breaking up the bridge we will choose the former method of pre-fracturing the geometry. We will use a common fracture method called Voronoi fracture. This method is based on the Voronoi diagrams from mathematics that is a special kind of

A A rendered image of the bridge while it collapses

B The animated bounding volumes specify where the glue constraint network is affected most

C Some still frames of the rendered collapse sequence

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decomposition of the 3D space determined by distances to a set of 3D source points. Each source point associates a corresponding Voronoi cell, the set of all 3D points whose distance to the given source point is not greater than their distance to the other source points. We will scatter points into the bounding volume of the bridge and use them as source points for the Voronoi fracturing. This will create a natural look, breaking up the bridge into thousands of pieces.

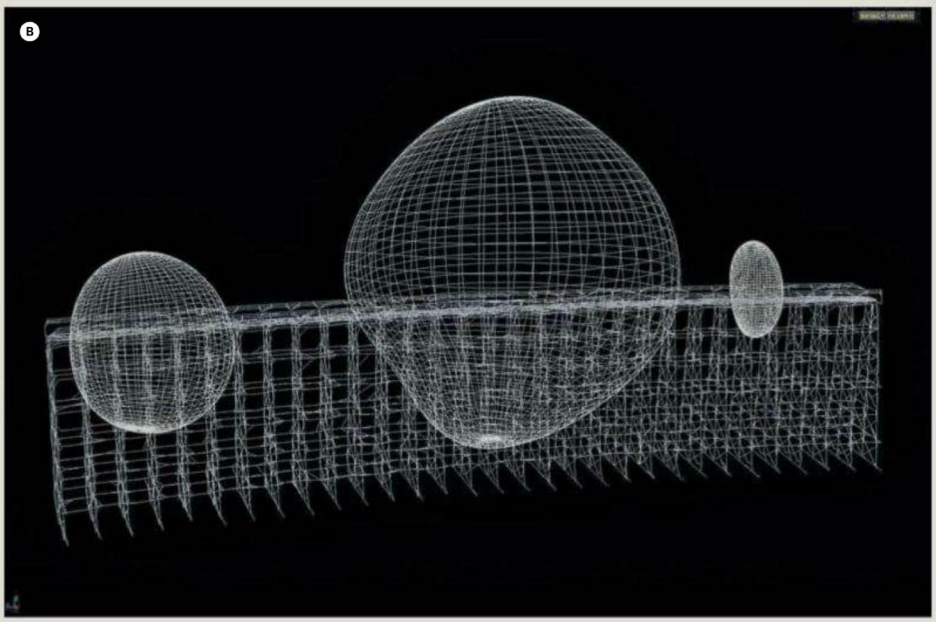
For creating realistic destruction effects we will be utilising glue constraints. These hold dynamic objects together based on their strength value. Every glued dynamic object moves as one whole object until enough force is applied to break the glue bonds. We will build a network of glue constraints for the bridge where every piece will be glued to multiple close pieces.

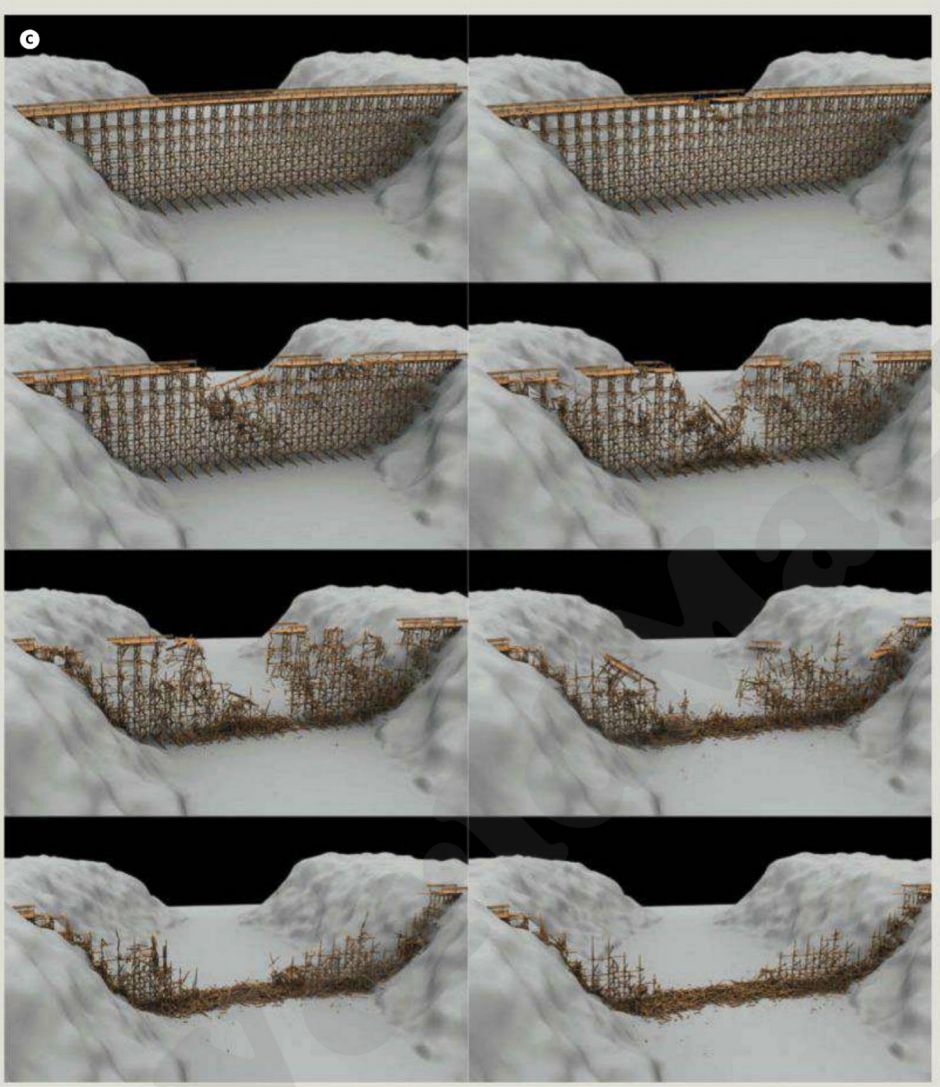
For collapsing the bridge we could randomise the glue strength values on the glue bonds, let the dynamic engine compute forces and break them accordingly. But instead we are going to do something different and a lot more controllable. First we will set all the glue strength values to a maximum value to make sure they can't break by forces. Then we will create bounding volumes and animate their size and shape. We will modulate the colours of the primitives representing the glue bonds that are inside of the bounding volumes and accumulate the minimum values. When the accumulated value is above a threshold we will change the strength value to break that glue constraint. This way we have full control of where to break the glue constraint to suit our purposes.

For the purpose of this tutorial we will create multiple cameras, which will allow us to render the simulation sequence showing the destruction scene from different angles. Since our goal here is to make the final render of the sequence look like an ambient occlusion render, the lighting will be using a simple light template with a global illumination shader. There were no materials created for the objects, instead a range of different colours were assigned to the models.

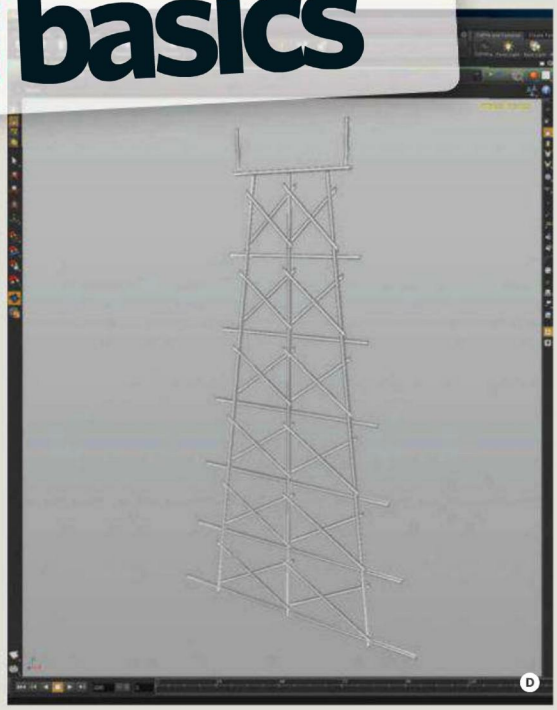
For rendering we could use any of Houdini's built-in rendering algorithms. For the main render of the simulation sequence I used Micropolygon Rendering with higher Pixel Samples values. To render the whole 400-frame sequence in 1,080HD, takes a really long time, but this is expected as we have a lot of geometry.

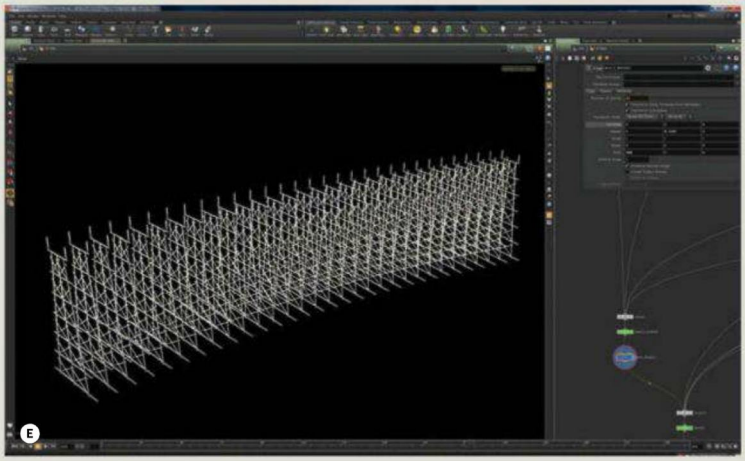
You will find the HIP file, rendered images and movies from all the different camera angles on this issue's disc.

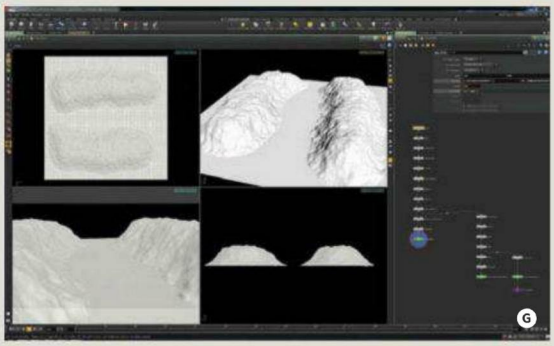


# Back to basics







- D Bevelled boxes build up the cross section of the bridge
- E Cross section duplicated with some rotation
- F The road on the top of the bridge
- G Use a VOP SOP to apply noise to the extruded areas, to achieve the final look of the terrain
- H The bridge fractured into 1,800 pieces, the colours represent the Voronoi cells
- I The extended geometry used to group pieces of the bridge to the surroundings

## It's time for destruction...

### 01 The basic shapes

Open up the HIP file from the disc and look around to familiarise yourself with it. Select the Bridge Geometry container and hit Enter to jump into it. As you can see, here I used bevelled boxes to create the basic shapes. I duplicated them evenly both horizontally and vertically using Duplicate SOP. I made sure that the boxes never perfectly connected to each other, there is always a little gap. I used the Cookie SOP to cut off the extra parts of the cross beams on the left and right sides D.

### 02 Build the bridge

After the cross section was built, it was copied 31 times for the whole bridge. The support beams between the cross sections were placed correctly for the first pair of cross sections then they were copied multiple times. Every piece was carefully placed to guarantee a gap between them for collision purposes E.

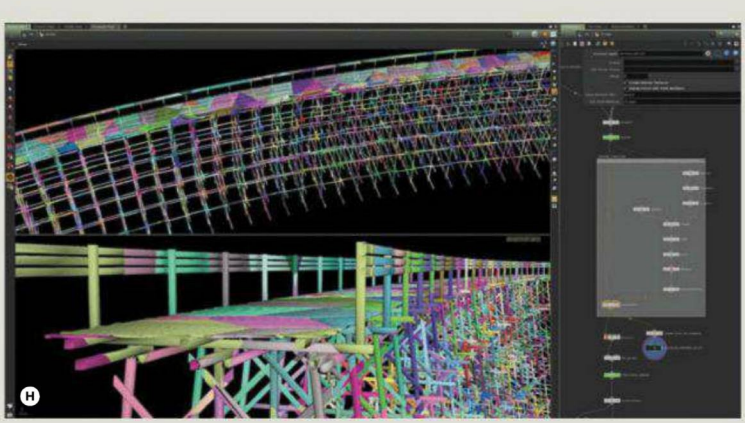
### 03 Add the road

Now that the bridge is built, it is time to add the road on top of it. I used pretty much the same technique, creating a bevelled box and placing it on top of the bridge's beginning. Then I used a Copy SOP to generate the right amount of planks. Each one gets rotated slightly to line up with the bridge and some random translation is applied along the top for a natural look F.

### 04 Create the mountains

To add interest I decided to add some terrain. I used the Grid SOP to create a heavily subdivided plane under the bridge, then I selected primitives on both sides of the bridge. I extruded the selected primitives using the PolyExtrude SOP.

I smoothed out the extrusion then added some interesting detail to it by applying displacement with Sparse Convolution Noise. I made sure that the areas between the mountains didn't get displaced so the bottom of the bridge wouldn't



## Bullet collision settings

The RBD Fractured Object DOP creates multiple RBD objects from SOP geometry. Before Houdini 12 this broke up the geometry into pieces according to the Group Mask parameter, requiring the user to create primitive groups on geometry that can be expensive. In Houdini 12 there is a new parameter called Fracture by Name that enables the use of a primitive string attribute on the geometry instead of groups to distinguish the pieces. If the pieces match any of Bullet's built-in collision shapes we can set the Geometry Representation parameter on the Bullet Data tab to the right shape type. If this is not the case we can set it to As Is and Bullet will build convex hulls out of the pieces for collision. If the pieces are concave then turning off Polygons As Convex Hulls will force Bullet to use the geometry without conversion.

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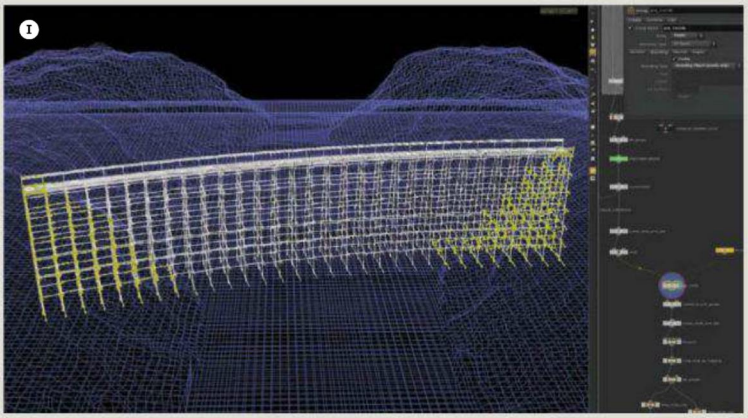
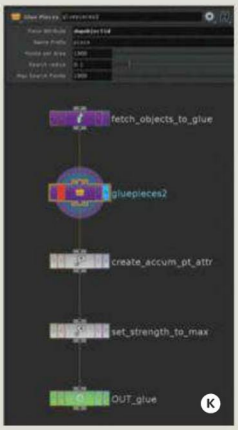


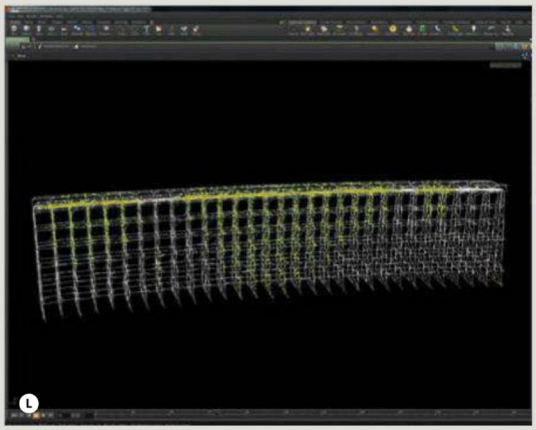
J The complete DOPs network mapped out

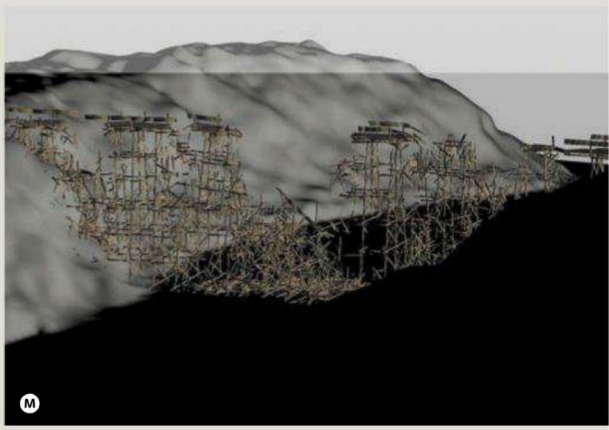
K In Houdini 12 you have the ability to build glue constraint networks easily

L Some selected points on the glue network to change the glue settings

M Set up the Light Template and assign the GI shader





interpenetrate with the ground. I also created a slightly inflated version of the mountains for selection purposes that I will explain later G.

## 05 Fracture the bridge

For the source points for the Voronoi fracture I built a volume out of the bridge using the ISO offset SOP, then I scattered points into the volume by using the Scatter SOP. The point set needed to be tetrahedralised for the Voronoi Split SOP. The output is the fractured bridge, every fractured piece has a primitive attribute H.

## 06 Separate the active section of the bridge

The overlapping part between the bridge and the mountains could possibly be a problem for the rigid body simulation. In this case the solver will try to resolve the interpenetration by pushing out the bridge pieces from the mountain geometry. To avoid this it's best to group the fracture pieces that have any part inside or very close to the mountains. To do this I used the extended mountain geometry as bounding volume with a Group SOP to group the points inside. Then I applied a Group SOP to convert the point group to a primitive group. After that I activated Attribute Promotion in order to group pieces that had any primitives in that primitive group I.

## 07 Set up the dynamic network

I created a static RBD object from the mountain geometry using the Static Object DOP. I used the RBD Fractured Object DOP with the group of the bridge pieces interpenetrating with the mountain to create a set of active RBD objects that have a No Change collision relationship with the static RBD object. I repeated the last step on the other group of the bridge pieces but set up an active collision relationship with all the other objects. To manipulate the glue constraint network I added the Glue Network Constraint DOP with the second input connected to a SOP solver to change the constraint strength values J.

## 08 Generate the glue constraint network

To build a network of glue constraints I used the Glue Pieces SOP, which creates glue constraints between adjacent pieces if the pieces are detected to be close enough to each other. The network consists of one point for each piece and each pair of points are connected by a polygon. The strength of the constraint is described by the strength of the primitive float attribute on each connection. At this point I set the strength to the same maximum value as the glue constraints K.

### Using Voronoi fracture

Bullet can handle a large number of objects. Especially if the pieces match one of Bullet's built-in shape types. If the geometry we fracture is convex, then using Voronoi fracture guarantees that all the fractured pieces will be convex as well. Setting Geometry Representation to As Is and leaving Polygons As Convex Hulls active, will enable us to simulate a huge number of pieces relatively fast.

## 09 Break the constraints

Go to the /obj level, select AutoDopNetwork and hit Enter to jump into it. Now select the sopsolver1 and hit Enter again. Here you can see that I created three bounding volumes by using the Sphere SOP. They all animated and deformed and were used to group points from the glue constraints network by using the Group SOP. I used VOP SOP to modulate the colour of these points, then applied the Attribute Promote SOP to accumulate the limited colours L.

## 10 Lighting and Rendering

I didn't assign any materials, but added primitive colour to the bridge and the mountain geometry. I also created a Light Template and assigned a GI Light shader. For rendering I used Mantra's Micropolygon Rendering. For the still image I used the default settings for everything except Pixel Samples. Pixel Samples are the number of samples that are filtered to get the colour for a pixel. It affects the quality of the final render greatly, so I opted for 6 x 6px M.

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# Boston Venom 2000-7T

## £5,499 ex VAT

**Our third look at Intel's latest Xeon processors shows their great strengths yet again**

**Boston may not be a brand you are immediately familiar with in the workstation market, but you may even already use kit associated with the company on a regular basis.** Aside from distributing Supermicro components, among others, for over a decade, Boston is also the local manufacturer of BOXX workstations. However the Venom 2000-7T bears the company's own name, giving Boston a chance to show what it can do itself.

The most important feature of the Venom is its choice of processors. This is our third view of Intel's new eight-core Intel Xeon, codenamed Romley. Like Workstation Specialists' WS 2850 and Armari's Magnetar X32, Boston has opted for two of the more cost-effective E5-2670 processors, rather than the top models from the new Xeon range. The E5-2670 is quoted as running at 2.6GHz, but can operate at 3GHz for extended periods, and if only one or two cores are under load, these can increase to 3.3GHz. Each of the eight physical cores is divided into two virtual cores, so the processor has optimal abilities, whether you're performing single-threaded tasks like modelling, or multi-threaded ones, for example when rendering.

The processors are backed up by 32GB of 1,600MHz DDR3 SDRAM, a huge but increasingly familiar quantity of memory. The DIMMs are arranged as two banks of four

## The good & the bad

- ✓ Fastest rendering performance we've seen
- ✓ Excellent modelling
- ✓ Great all-rounder
- ✗ More expensive than other Xeon E5 workstations we've tested so far

## Essential info

**www.boston.co.uk**

**£5,499 ex VAT**

**OPERATING SYSTEMS**

- 2x 2.6GHz Intel Xeon E5-2670
- 32GB 1600MHz ECC DDR3 SDRAM
- 2GB NVIDIA Quadro 4000
- 128GB Crucial M4 Solid State Disk
- 2x 1TB Hitachi Deskstar 7K1000.C 7,200rpm SATA hard disk
- 20x DVD rewriter
- Windows 7 Professional 64-bit
- Warranty: Three years, first year on-site, second and third years RTB

Boston's workstation will prove to be a major competitor

4GB modules, taking full advantage of the bandwidth boost from the Intel Xeon E5's quad-channel memory architecture. Graphics acceleration comes in the form of NVIDIA's Quadro 4000, with its 256 CUDA processors and 2GB of GDDR5 frame buffer. This is a good all-round 3D card, although there are more powerful alternatives available from both NVIDIA and AMD.

Storage provision comes in what is now the standard configuration in a workstation. For fast boot and application load times, Boston has chosen a solid-state disk as the main repository for operating system and software, in the shape of a Crucial M4 drive with 128GB capacity. This is partnered by a pair of 1TB Hitachi Deskstar 7K1000.C conventional 7,200rpm hard disks. Boston has configured these as a RAID 1 mirror, which means identical copies of data are kept on both drives, so if one fails your content is safe. You can reconfigure these as RAID 0 if performance is more important than data integrity. Rounding off storage is a 20x DVD writer, but no memory card reader.

In terms of performance, the Venom acquits itself very well, as we have come to expect from the new Xeon E5. The rendering score in Cinebench R11.5 of 22.51 is actually the best we've seen, just edging past Armari's Magnetar X32, although not by enough to be noticeable in real-world use. The Cinebench R11.5 Open GL result of 59.5 isn't quite so dominant, but is still near the top of the league. SPECviewperf scores are similarly excellent but not the absolute best we've seen. The lightwave-01 result of 52.17 puts the Venom in the same position as its Cinebench abilities, although the maya-03 score of 78.62 is pretty close to the fastest we have ever recorded. The Solidworks viewset, sw-02 was despatched easily for a result of 47.77, yet again a top score but not the most impressive we've seen.

Overall, the Boston Venom 2000-7T tells the same story as the other Xeon E5 workstations we've tested so far. It's unbeatable as a rendering system, essentially providing the performance of a modest render farm in a single box. However, thanks to the relatively conservative individual core clock speed and high-end but not exceptional graphics, the modelling is great but there are a few better specifications out there.

The other consideration is the price, which is around £1,000 more than Armari's Magnetar X32 and £500 more than Workstation Specialists' WS 2850. So while this is a supremely fast renderer and excellent modelling workstation, you can pick up similar for less money.

## Our verdict

| | |
|---|---|
| Features | 8/10 |
| Performance | 10/10 |
| Value for money | 7/10 |
| Quality of results | 9/10 |

> "Another record-beating rendering score, although the price is also higher than similarly specified systems"

**Final Score 9/10**

Workstation

# NewTek LightWave 11

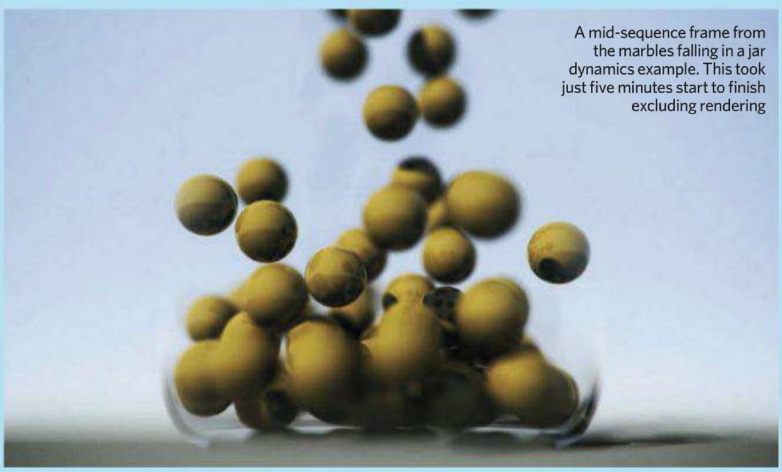
## $1,495 US

**With fast physics, virtual studio tools, and improved rendering, the latest iteration of LightWave is here**

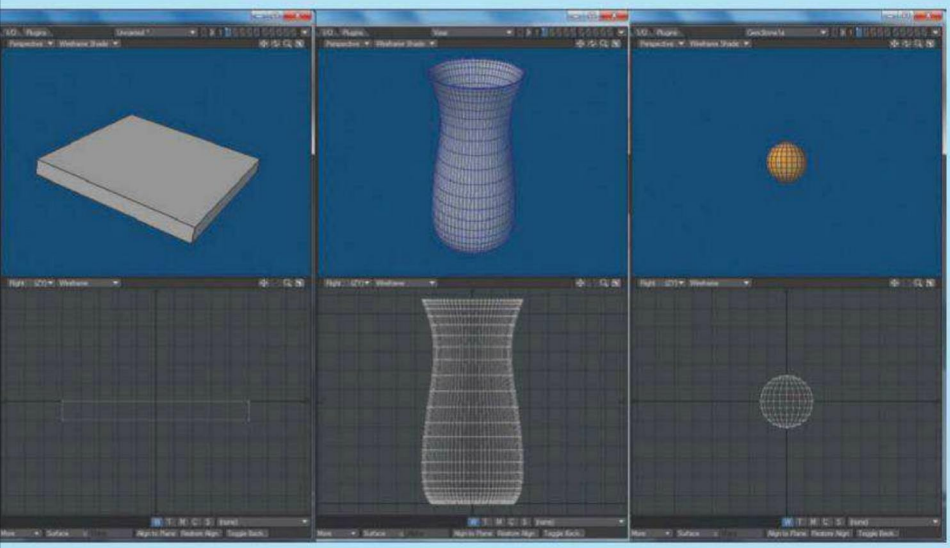
**In 2010 LightWave 10 arrived amid much anticipation, bringing a number of big improvements**. In the year between 10 and 11 we have seen some major changes in direction. To start with, the anticipated complete revamp of LightWave outside as well as inside fell by the wayside. For some this seemed like the death of LightWave's salvation, but for the majority of the user base, it meant they would remain on familiar working territory. After all, it would have been like learning a new piece of software. So all existing users have the familiar separate modelling and rendering applications as before, and maintained plug-in compatibility, which is always a major consideration with LightWave. New headline features come in the form of Instancing, Bullet Dynamics, Fracture, Flocking, Virtual Studio Tools, Python Scripting, enhanced FibreFX, and improved interchange options with emphasis on ZBrush users, as well as OBJ and FBX being updated.

Visually the Bullet Physics is a real pleaser. Not just to the casual observer, but also because it now finally brings fast functionality to the user rather than having to wade through acres of numeric fields. Now it's simply applied to objects and calculated as soon as you run the preview or scrub the timeline. Coupled to this the new Fracture tool in modeller makes the physical destruction of objects much simpler. Rather than looking for third-party plug-ins or manually creating segments of your object, you can simply run Fracture. Three choices of algorithm provide you with differing types of fracture pieces.

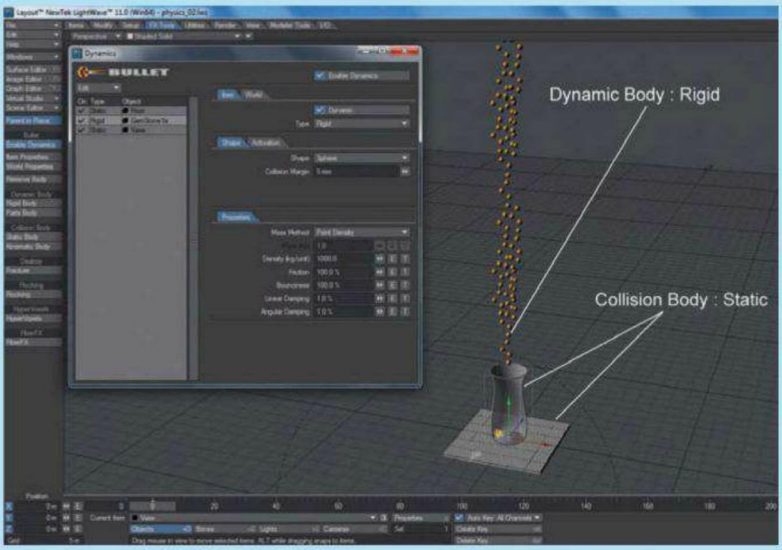
Animators now have native tools for animating flocking behaviours. You can control the numbers, where they are heading and how they get there, as well as avoidance of specifics along the way. Directly relevant to the flocking tools is LightWave's new native instancing. Huge numbers of objects or polygons can be instanced without incurring the overheads of having objects actually loaded into the scene. Where previously you



A mid-sequence frame from the marbles falling in a jar dynamics example. This took just five minutes start to finish excluding rendering



A simple floor, vase and marble. For dynamics it is recommended to have a model scale of 0.4-10m




With the objects in layout, select the floor and vase and add Collision Body : Static from the FXTools menu

could load a scene with several cars, you can now have hundreds all at once. You can control how they are dispersed in the scene, along with orientation, and even vary the surface shading to create natural-looking, chaotic variation.

In the past users have relied heavily on Worley Labs F-Prime plug-in for rendering, because it always used to be much faster than native LightWave rendering for radiosity and DOF, but LightWave 11 has taken a step forward with its renderer. It still delivers the fast results it always has, but with unified sampling the controls for combatting areas of noise in your renders have been brought together in a much simpler and intuitive way. It's now much easier to tailor your rendering settings based on the types of shaders without having to adjust sample settings in a million shaders.

Virtual Studio tools enables you to work live within your scene to adjust and control cameras, now using Connexion and PlayStation Move devices for example, updating the animation in real-time, and allowing for saving multiple takes for later rendering. What is controlled, and how it is controlled has been vastly expanded.

Python is an industry-standard programming language common in many CG pipelines. The inclusion of Python in LightWave 11 means even further integration of the program into studio pipelines, as those familiar with Python can quickly begin writing tools for LightWave.

Despite the direction change from CORE, LightWave 11 is a big upgrade that brings many enhancements not to be missed. Modelling sees modest changes, but as a package, the changes are very significant.

## The good & the bad

- ✓ Quick, intuitive dynamics
- ✓ Renderer better than ever
- ✓ Instancing now native
- ✓ FibreFX improved
- ✗ Still no UV fix for CC Subdivision
- ✗ Modeller feels somewhat unloved

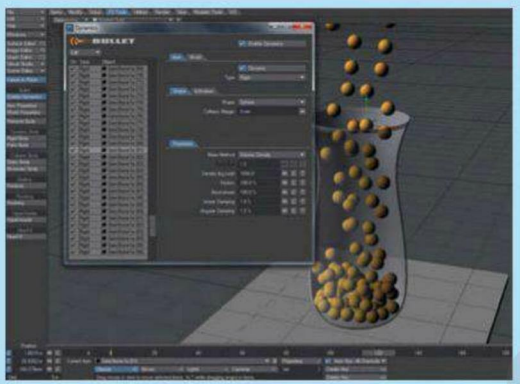
## Essential info

**http://www.newtek.com/products/lightwave.html**

- $1,495 US (upgrade price $695 US)

**OPERATING SYSTEMS**

- Windows: Vista/7 32 & 64 bit
- Mac: Snow Leopard 10.6 or higher
- Optimal system requirements
- 64-bit Processor
- 4GB RAM or higher
- NVIDIA GeForce 8600 / ATI X1600 or higher



The marble has been moved above the vase and cloned numerous times. Hit play on the timeline to see the dynamics calculated and previewed

## Our verdict

| | |
|---|---|
| Features | 8/10 |
| Ease of use | 9/10 |
| Quality of results | 9/10 |
| Value for money | 10/10 |

> An awful lot of bang for your buck. Instancing and dynamics and a host of improvements make LW11 a winner

**Final Score 9/10**

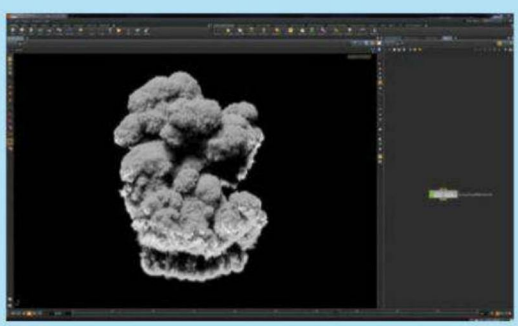
Workclass

Fire and smoke rendered using the new Pyro Clustering. The Pyro source points get divided into clusters, with each cluster in its own container. This technique enables you to simulate and render small parts of a large simulation independently

# Houdini 12 From $1,995 USD

## Houdini 12 is the latest version of Side Effects Software's procedural animation package, offering an array of new features and performance enhancements

**In Houdini 12's development, the main focus was to make it faster and more efficient.** To achieve these goals Side Effects made fundamental changes to the architecture. The geometry engine has been re-engineered from the ground up to make it thread-safe and extensively multi-threaded. It now comes with a faster vector-centric data structure using double precision with customisable attributes and data types. Significant speed improvements and dramatic reduction of memory usage was also applied.



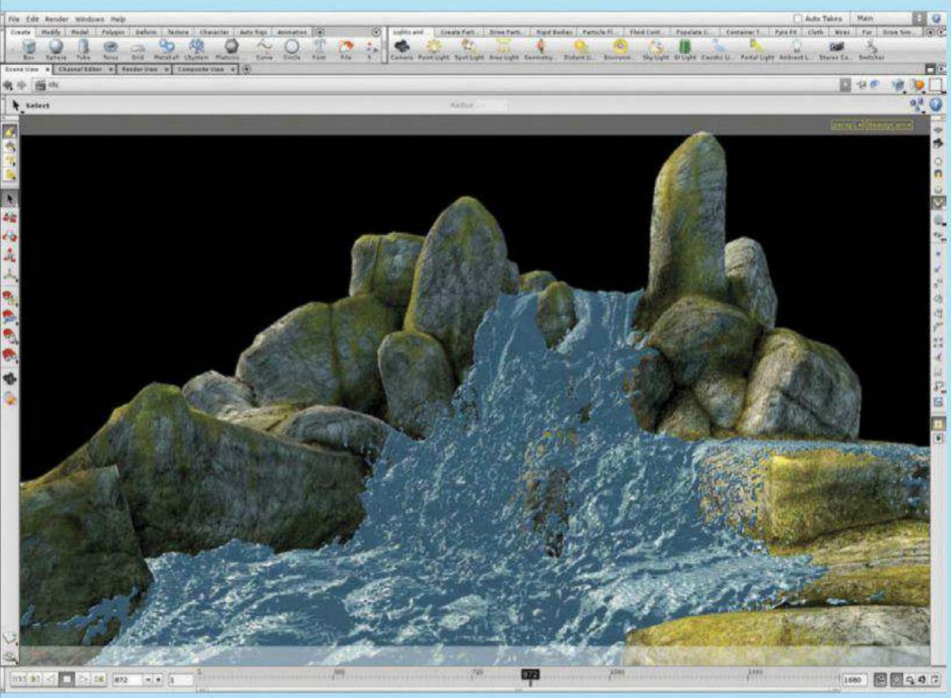
Smoke with great quality lighting and shadows in the new viewport

The viewport is now the default scene renderer and is shader-based for OpenGL 3 and 4 hardware. It can now display very large data sets and the picking process is greatly improved. We were impressed by the high-quality texture support and great-looking volumetric effects particularly.

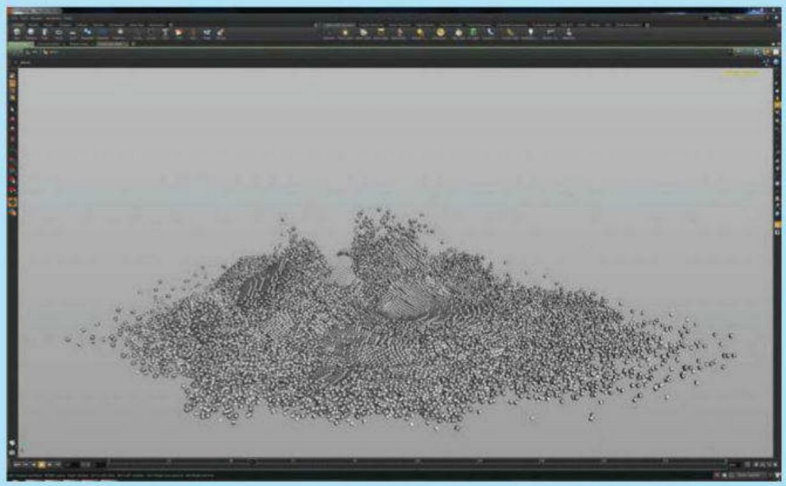
You'll find Houdini's new Performance Monitor greatly improved. This very powerful tool will enable you to evaluate a lot of different aspects including cooking operations, OpenGL performance, solver performance, threads, Mantra processes and many more. The monitor will provide you with live feedback and even stores results for further scrutiny. The statistics viewer can display information in real-time or in varying degrees and you can also display a heat map in the node view to find the performance bottleneck in your scene graph.

Houdini's Bullet solver is now fully implemented into the dynamic context and is the RBD solver. It works with dynamics fracturing and is great for modelling fluids. You're also given the ability to handle over 100,000 objects using Bullet collision primitives. Bullet constraint networks are also used to give increased control and add stability to your workflow. Besides Bullet DOPs you'll still find the RBD and ODE solvers readily available.

The new version of Pyro FX is very impressive. Setting up fire and smoke simulations is a lot easier and they look more realistic. You can now achieve fast, low-resolution sims that can be upraised easily to add detail while maintaining the look defined by the low-res sim. Pyro FX also enables you to iterate faster and scale up when needed. With modern video cards the GPU can simulate fire and smoke effects 150 times faster using 80 per cent less memory and displaying in a quality close to the real render.



You can run FLIP fluid sims with a lot more particles



The fully implemented Bullet solver can handle sims with more than 100,000 Bullet collision primitives

The FLIP fluid solver is significantly faster and can handle much larger data volumes, meaning you can generate bigger and longer sims with a lot more particles. A workstation with 24GB of RAM can now handle about 80 million particles. The workflow is greatly simplified and the legacy simulation issues have been resolved. New viscosity controls have been added to create a range of liquids to replicate melting and hardening. The surfacing quality also uses improved algorithms and oversampling.

The cloth solver is production-ready, and can run low-res sims about 150 times faster. More resolution can be added later for a more accurate result. It provides point level control for all the parameters of the simulation.

There is a new VEX compiler that can compile shaders about 25 times faster, using 50 per cent less memory. VEX now has arrays and structs, which is the first step toward complete class support.

Houdini's built-in renderer, Mantra, was recently recognised by the Academy of Motion Picture Arts and Sciences with a Technical Achievement award, the company's third. Now it brings physical-based rendering to volumes such as smoke and fire, enabling the use of environment lights and generating ray traced shadows. Mantra point instancing is about 300 times faster than previously.

Overall, this version of Houdini is faster and more responsive, with enough new features to make an upgrade worthwhile.

## The good & the bad

- ✓ Significantly faster geometry engine
- ✓ Extensive multi-threading throughout the package
- ✓ New faster Pyro FX 2 for fire and smoke simulations
- ✓ Faster and more accurate FLIP fluid solver
- ✓ Production-ready cloth solver in Master version
- ✓ Provides support for the Alembic file format
- ✗ Currently a lack of sparse volumes

## Essential info

**www.sidefx.com**

- Houdini Escape $1,995 USD
- Houdini Master $6,695 USD
- Houdini Apprentice HD $99 USD/year
- Houdini Apprentice Edition Free

**OPERATING SYSTEMS**

- Windows XP or Windows 7 (32 or 64-bit)
- Mac OS X 10.6 or higher
- Linux

**OPTIMAL SYSTEM REQUIREMENTS**

- Recent generation 32 or 64-bit AMD or Intel processor (64-bit strongly recommended)
- Minimum 4GB RAM / 8 GB recommended for creating fluid simulations
- 64-bit Operating System recommended
- Minimum 1GB disk space
- Three-button mouse required

## Our verdict

| | |
|---|---|
| Features | 9/10 |
| Ease of use | 7/10 |
| Quality of results | 9/10 |
| Value for money | 9/10 |

> With an overhaul of features and a wealth of upgrades, Side Effects has taken Houdini to a whole new level

**Final Score 9/10**

Workflow Press

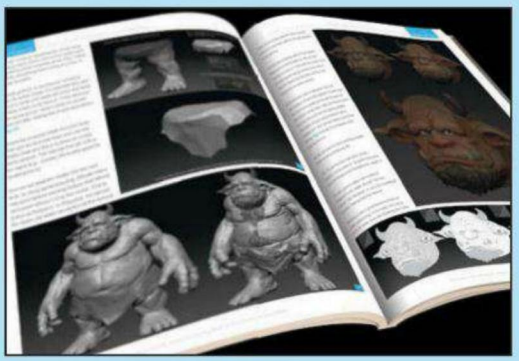
# ZBrush Character Sculpting

## £30 / $49 US

**3DTotal Publishing launches a new series filled with projects and techniques to help you master characters in ZBrush**

The wealth of expert advice available is certainly impressive, giving the reader great insight into what can be achieved

Though at first it may seem intimidating, the book eventually settles into an accessible blend of galleries and tutorials



Get unique insights into how ZBrush can be used to take characters from concept to completion

**When a book endorsed by Aaron Sims falls into your hands, it's difficult not to be intrigued by its offerings.** This one in particular is the first in a new series of books from the ever-expanding bookshelf at 3DTotal Publishing, providing well over 200 pages of tutorials, techniques and inspiration from some of the industry's ZBrush masters.

Not version-specific, the book comes across as a celebration of what talented minds and hands can generally achieve with the powerful digital sculpting application, ZBrush. The introduction promises that this beautifully presented tome will provide you with the knowledge required to start your own digital sculpting adventures, implying that a beginner could pick this up and get going. It could be seen as rather intimidating that the first tutorial leaps straight into hard-surface sculpting, when many would look to ZBrush initially for its organic nature. That said, the tutorial is thoughtfully structured and the following chapters certainly delve into characters that involve both organic and hard-surface elements. You're in good hands with pro artists Mike Jensen, Cedric Seaut and José Alves da Silva showing you the way.

A classical sculpture section by Brazilian sculptor Rafael Ghencev gives helpful lessons in anatomy, poses, refining the skin and texturing, as well as how to achieve a traditional quality with your digital renders.

At the rear of the book it's all about monsters and mercenaries, with a token cartoon armadillo thrown in for good measure. While this may give the impression of a book that has been compiled after-the-fact, the lessons are a high-quality and come from big industry names, including Rafael Grassetti and Federico Scarbini.

The Featured Artists page looks fun, but it's a shame we can't see artist bios to learn more about who's teaching us along the way. The same applies to the Gallery section, though certainly impressive, which would benefit from captions that tell you the version of ZBrush being used and the year images were created. With so many features added to ZBrush to streamline workflow with each new release, it would be helpful to see which version has been used per image.

This new book is not only luxurious, but its clean layout makes it non-threatening and accessible. We love that the gallery in the middle of the book gives a healthy breather between the hardcore step-by-step projects and the monster-making tutorials at the back, too. As an added bonus, the book features free downloadable base meshes and video tuition from the 3DTotal Publishing website to help you on your way to ZBrush glory!

**http://3dtotalpublishing.com**

### Our verdict

| | |
|---|---|
| Quality | 9/10 |
| Ease of use | 8/10 |
| Overall usefulness | 7/10 |
| Value | 8/10 |

> "Packed with inspiration and helpful techniques to use in your own character projects"

### Final Score 8/10

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Artist info

**RenPeng Dong**

**Personal portfolio site**
www.oldrhyme.cgsociety.org

**Country** China

**Software used**
3ds Max, Maya, ZBrush, Mudbox, Photoshop, V-Ray

"I saw an image on a website that was like a kind of transparent man blending with his background, which brought me this great idea... [I] decided to show the feeling of part drying paint, part real, part plaster"

Non-US readers turn to page 90

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# workspace 3D

Inside guide to industry news, studios, expert opinion and education


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inside

"If you mess up and it gets delivered because time ran out – oh man, you're in some hot water!"

**Safari Sosebee** reveals the difficulties of starting out in the VFX industry as a fresh graduate. Page 108

***Hugo***
**Studio:** Pixomondo
Global VFX studio Pixomondo re-created a stunning Thirties set for Martin Scorsese's feature film, *Hugo*. The likes of 3ds Max, Maya and MotionBuilder helped to tell the magical story
**www.pixomondo.com**
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George Lucas on **01202 586421** or **george.lucas@imagine-publishing.co.uk**

## Update: MARI 1.4v3

Continuing on the industry-wide theme of interoperability, MARI 1.4v3 now grants users the ability to customise the software interface to better match that of their native package. This only supports the needs of those familiar with Maya, Houdini and NUKE for the moment. Other notable new features include tint and stencil options within MARI.

MARI 1.4v3 is a release that focuses primarily on ensuring the creative process remains the most important part of its workflow

©The Foundry

# The Foundry adds HIERO to its VFX product lineup

## Shot management tool HIERO gets unveiled alongside NUKE and MARI updates

A HIERO offers users the ability to quickly swap out shots for alternate versions and rapidly manipulate sequences for review

B NUKE 6.3v7 now supports layered Photoshop documents alongside RenderMan content

HIERO places itself within the niche market area, bridging a gap between VFX, finishing and editing

**The team at The Foundry have had a busy few months touring the latest product HIERO, while releasing significant updates to flagship products NUKE/NUKEX and MARI.**

With The Foundry's promise of a "brand new pipeline in a box... tackling VFX shot management, conform and review", HIERO is in some ways the timeline NUKE never had. HIERO places itself perfectly within a niche yet highly important area, forming an essential bridge between VFX, finishing and editing tasks. Early user reviews of HIERO have been complimentary to say the least. "HIERO is ****ing brilliant. Seriously, at the price point, it's a no-brainer!" says Andres Kireje w, VFX supervisor at Township. Hugo Guerra, joint head of NUKE at The Mill comments, "Using HIERO and NUKEX together is the perfect solution." Such positive feedback can possibly be attributed to HIERO's low price plus its ability to nearly eliminate previously laborious tasks, such as conforming and file management.

Other notable new features of HIERO include the greatly celebrated review toolset, enabling users to quickly switch between various shot iterations and versions within a sequence and play back instantly – this is particularly useful for quickly mocking up alternative sequences or for client review.

The Foundry has been keen to exclaim that HIERO is absolutely not to be taken as a compositing tool, and has looked to ensure it remains the clean, lightweight solution that user demand originally requested. It encourages a truly collaborative workflow, giving users across multiple departments the ability to take control of its functionality with little training.

HIERO is also fully scriptable, enabling it to adapt fully to any required pipeline operation, bridge any conceivable gaps and accelerate the VFX process. Priced at a modest £3,150/$5,000 US for a single node-locked licence, the obvious savings in time, combined with complete adaptability by way of scripting, will likely act as justification enough for larger studios. Learn more at www.thefoundry.co.uk.

> "HIERO is ****ing brilliant. Seriously, at the price point, it's a no-brainer!"

## Update: NUKE 6.3v7

NUKE/NUKEX is The Foundry's industry-leading compositing and tracking application, which has received a significant update with the release of version 6.3v7. The update, which focuses on cross-developer interoperability, is now capable of dealing with up to 16-bit layered PSDs and integration with Pixar's RenderMan software easier.

London-based 3D specialist Ross Board rounds up the latest news

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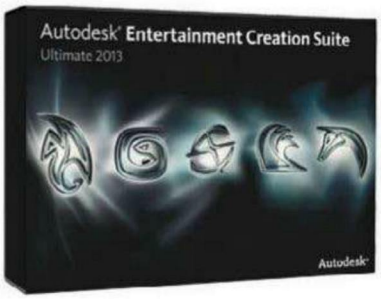
# Autodesk upgrade

## 2013 editions of industry favourites unleashed




©Autodesk 2012

Autodesk's Digital Entertainment Creation Suite 2013 comes with notably upgraded versions of Maya, Softimage, 3ds Max, Mudbox and MotionBuilder

Maya 2013 features a heavily upgraded viewport display system, enabling users to visualise their work before rendering better than ever before!

**It's that time of year again when Autodesk unveils the latest iterations of its industry-leading Digital Entertainment Creation Suite, including 3ds Max, Maya, Softimage, MotionBuilder and Mudbox.**

There have been numerous tweaks and improvements across the board, with notable changes in the flexibility of all of the packages, enabling them to work more fluidly with the offerings of other companies such as Adobe. Both 3ds Max and Maya have had upgrades in the physics department, with Maya sporting a new toolset, and MassFX in 3ds Max now supporting long-awaited soft body and cloth simulation abilities.

All of the packages are available immediately and can be accessed online for subscription account members. 3ds Max users should be aware that a complete code overhaul in 2013 will result in all 2012-compatible plug-ins, such as V-Ray, ceasing to function for the time being, until new versions are made available. Find out more at http://autode.sk/HRJ88J.

# The 1.3MP mocap camera for under $1,000

## NaturalPoint's OptiTrack Flex 13 is a world-first: 1.3MP capture for less than a thousand dollars!

**The cost associated with motion capture has become steadily more accessible in recent years, with the onset of the Microsoft Kinect driving prices down ever further.** Professional motion capture, unlike the Kinect, has always been renowned for its relatively high outlay in order to get working – something which the OptiTrack Flex 13 system aims to combat, offering the world's first 1.3 megapixel camera for $999 US that's able to faultlessly track multiple actors using its 56-degree FOV stock lens in a standard 20 x 20-foot setup. The system is due to ship immediately, more details can be found at www.optitrack.com.

©OptiTrack 2012

# Software shorts

Bringing you the lowdown on product updates and launches

## Golaem Crowd 1.4

Golaem Crowd offers a simple crowd simulation plug-in for Maya that is not only incredibly flexible, it is also incredibly easy to use. The solution enables users to create massive animated crowds in a short time. A free 30-day trial and more information can be found at www.golaem.com.

## Luxion KeyShot 3.1

KeyShot, the popular real-time rendering system from Luxion, is back. It now comes with many enhancements including real-time environment editing, metallic paint shaders, material templates, network rendering, Maya support and 3Dconnexion certification. At $999 US, it's available alongside more information from www.keyshot.com.

## DAZ 3D Model Pro Suite

DAZ software recently made the bold move of offering many of its products free of charge, and has since given away over 150 million US dollars' worth of stock. Now it has released the 3D Model Pro Suite, featuring the highest-quality models, all of which are compatible with Photoshop's improved 3D capabilities, for just $199 US. More details can be found at www.daz3d.com.

# Insightful snippets

Major UK business organisation CBI, representing over 240,000 businesses, comments on the Chancellor's budget

**John Cridland, CBI director-general remarked on the system of tax credits, stating: "The new tax credits for TV drama, animation and computer game firms will be a welcome boost for the UK's creative industries. These... companies operate on a global stage, and their exports generate much-needed wealth and jobs. With other countries already offering [many] attractive tax incentives, it's important that the UK can compete."**

©CBI

CBI represents over 240,000 private sector businesses that employ around a third of the UK's private sector workforce

# A look to the future

## Autodesk Animation Store sets precedent for content micro purchasing within professional 3D applications

Autodesk recently unveiled the company's 2013 offerings, including 3ds Max 2013 edition, which features the new Autodesk Animation Store within the refined Character Animation Toolkit (CAT). This enables users to view and purchase motion capture data from within 3ds Max from Autodesk's partner company, Mixamo.

This is beneficial for animators looking to have an expansive, inexpensive and accessible mocap database. Users are also able to preview the data on any biped model before buying to assess viability. Most of the motions are priced keenly at around $20US, with various free and high end packages also available.

©Autodesk 2012

# New tools

## HP unveils new workstations

**HP updates the powerful Z series line with the Z820, Z620, Z420 and Z1 high-performance workstations**

In an effort to match the continued growth in industry demand, HP has debuted updates to the quality Z series, introducing the Z820, Z620, Z420 and Z1 workstations.

The Z820, representing the highest end of HP's workstation line, features up to 16 processing cores, 512GB of EEC memory, 14TB of storage, and a maximum of two NVIDIA Quadro 6000 graphics cards. Of course, this is budget-dependant, and all machines are highly customisable as per required specification. See **www.hp.com**.

HP's latest offering, the Z1, is designed to enable easy access to the inner parts

©HP/Hewlett Packard 2012

"Opinion"

# How to win an Oscar? Be invisible

## CG is becoming a key ingredient for award-winning blockbusters

Pixomondo's VFX supervisor Ben Grossman discusses what it takes to produce an Oscar-winning film

**Autodesk** www.autodesk.co.uk

What does it take to get a Special Effects Oscar? "You make it look as simple as possible so everyone thinks they are just making a normal movie," Rob Legato, VFX supervisor on *Hugo*, told Autodesk recently. He confided that he did his best to hide the "great pains" the team had gone through to re-imagine Thirties Paris, so that *Hugo* became a great film, rather than a special effects film, "Which is how it should be", he said.

Martin Scorsese is known for creating close-knit teams under his direction, even across ten global locations, as with *Hugo*. "The interoperability of our tools helped us to meet tight deadlines and bring Scorsese's magical vision to the big screen," said Ben Grossman, Pixomondo's VXF supervisor. *Hugo*'s pipeline used Maya and 3ds Max for animation, rendering, character rigging and modelling.

Pixomondo took the lead in creating Martin Scorsese's visual masterpiece

Many of the nominated films at the awards used Autodesk's software, so perhaps Oscar winners will be thanking the technology behind their success more often in the future.

> "The interoperability of our tools helped us to... bring Scorsese's vision to the big screen"
>
> **Ben Grossman,** Pixomondo's VXF supervisor

# Congratulations to...

## University for the Creative Arts (UCA) alumni win four awards at British Animation Awards

Francesca Adams pictured with her Public Choice BAA award for short film 'Bertie Crisp'

Animation alumni at the UCA in Farnham recently took home four of the coveted British Animation Awards, recognised in categories such as Best Short Film, Best Pre School Series, Best Commercial: 2D and the Public Choice award.

The UCA is no stranger to its graduates receiving prestigious accolades, with four previous students going on to win Academy Awards. This year alone, ex-student Grant Orchard received a BAFTA award and Oscar nomination.

# Next Limit certification

## Next Limit Technologies offers RealFlow and Maxwell certification for schools, universities and training centres

©Next Limit Technologies 2012

**Next Limit Technologies, known globally as leaders in rendering and simulation software, has announced new certification schemes targeting both educational establishments and training centres alike.** The certification, which will be available for both RealFlow and Maxwell, comes with many benefits including free non-commercial licences, discounts on commercial licences for alumni, use of the certified logo, promotion on Next Limit's website and access to various exclusive online resources. More information can be found at www.nextlimit.com.

Project Focus

# Little Talks

## WeWereMonkeys pushes the boundaries with a highly creative music video for Of Monsters and Men

A

B

C

D

E

**Project** Little Talks
**Description** Five sky sailors discover a crystal meteor containing a lost mythical female creature. An epic journey through fantastical worlds ensues as the sailors struggle to return her home
**Client** Of Monsters and Men
**Record label** Universal Republic Records, Universal Music Group
**Country** Canada/Iceland
**Software** After Effects, Maya, Photoshop, CINEMA 4D
**Company** WeWereMonkeys began in 2007 with an award-nominated stop-motion animation for band Malajube's single *Le Crabe*. The company's music videos, commercials and animations have continued to receive universal success and have been featured in film festivals globally
**Website** www.wewerемonkeys.com, www.troublemakers.tv

**WeWereMonkeys is a small but mighty operation combining the unique talents of self-taught director Mihai Wilson with the efficient skills of producer Marcella Moser.** Approached by Geoff McLean, executive producer at Vision Entertainment, this duo was asked to write a treatment for the *Little Talks* single by Of Monsters and Men. "The band sent us a simple sketch of their ideas to begin with," WeWereMonkeys says. "We read it over, and after listening to the song on repeat we came up with a completely new concept that we thought could work even better... Once the band bit into our concept, they were very excited by the visual style that we could create for them."

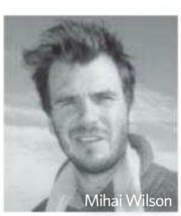
WeWereMonkeys combined live action with rich CGI, shooting the band members before greenscreens while creating and animating their bodies in 2D. Backgrounds and monsters were designed in Photoshop using collage and matte painting techniques, with CINEMA 4D and Maya brought in to swiftly make the 3D elements. "We used CINEMA 4D and Maya to generate 3D hair, ocean waves and the animated phoenix-like birds," WeWereMonkeys explains. "The Hair tool in CINEMA 4D is really powerful [for] complex and organic animation. To create that kind of visual impact in 2D would require mountains of manual work. The Ocean Shader tool in Maya made building a wavy ocean easy, and generated a semi-realistic look that fitted better with the overall aesthetic of the video."

Concept is always the key to making interesting work for Wilson and Moser. "We strive to generate ideas that really fit with the mood of the music," WeWereMonkeys says. "We do this by listening to the music over and over until a vision comes to us... We really enjoy packing our videos with so many details that they demand repeat viewing."

> "We really enjoy packing our videos with so many details that they demand repeat viewing"
> **WeWereMonkeys**

**Watch!** Little Talks at www.wewerемonkeys.com/vid_littletalks.php

### Contributors


Mihai Wilson

**Mihai Wilson** Director, postproduction, animation, VFX
**Marcella Moser** Producer
**Geoff McLean** Executive producer
**Hákon Sverrisson** Director of photography
**Kristín Andrea Þórðardóttir** Production manager
**Gunnar Gunnarsson** Key grip
**380 Studios Reykjavík** Greenscreen studio
**Vision Entertainment** Production company

A WeWereMonkeys came up with an original brief rather than following the band's own plan. They also agreed on the premise that they would avoid any Icelandic stereotypes!

B Live footage of the band members' heads was filmed in one day, at a greenscreen studio in Reykjavík. The live-action heads were later matched to the new 2D bodies

C WeWereMonkeys spent three days with production manager Kristín Andrea Þórðardóttir, driving around Iceland's countryside capturing footage for postwork

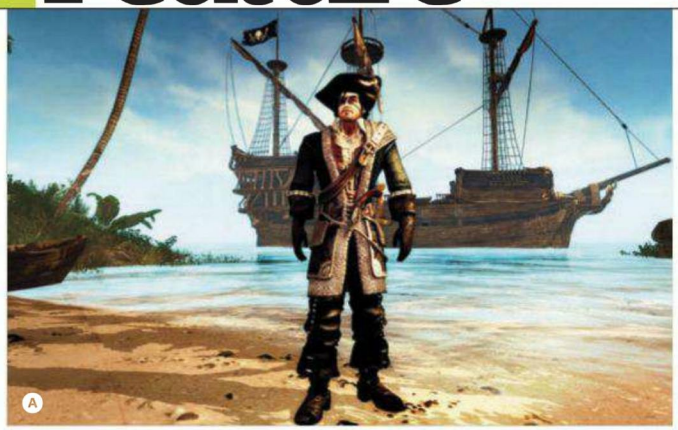
D Shooting in Iceland's harsh weather was challenging: fogged-up lenses, overexposed images, lost gear, freezing hands and outrunning snowstorms on the road!

E Wilson completed all of the postproduction in six weeks. They're currently finalising postwork on a self-produced sci-fi film, while also writing a script for a feature

Studio Access

# Risen 2

## Animation specialist metricminds talks to us about bringing motion capture to Risen 2: Dark Waters


A

**Having provided animation and motion capture for some of the best videogame developers in the world, German company metricminds has brought a crucial degree of realism to the interactive medium by creating cutscenes entirely in-engine.** Its most recent project, the pirate-themed RPG *Risen 2: Dark Waters*, developed by German studio Piranha Bytes, has been an altogether greater challenge, with a vast range of individual animations needed to enhance the narrative of the game's fictional universe.

"If you take a look at the variety of different characters in the game, you have certain animation that can be shared between them, but there are still specific and individual movements distinguishing each group from one another," lead technical artist Christoph Schulte explains to us. "This was something that had to be considered from the beginning of the project."

It was due to an effective collaboration with Piranha Bytes that metricminds could tackle the project in a workable time frame. "Our team sat down with the guys at Piranha Bytes and talked about the best solutions for their brief, and a robust pipeline was built from the start to convey their vision," Schulte explains. "The project hit the ground running right from the start with almost 50 character heads [with] different topologies sharing similar-looking blend shapes. We had to develop a technical workflow that [enabled] us to reference certain shapes onto different heads. These shapes were split into three groups of speech, emotions and moods. One of the main requirements was that each shape [have a] similar visual expression on all characters. This meant that after all the shapes were created, they had to undergo a normalisation process to match this requirement."

The capture sessions on *Risen 2* took about two or three weeks to complete. Although the team tends to use generic character models for real-time feedback, in *Risen 2*'s case they used a pirate model that matched the animations of all the in-game characters. Next, in the animation stage, any inconsistent behaviour was ironed out while the crew worked to keep the expression intact.

We asked Schulte what particular software helps with metricminds' varied range of game-related projects. "Vicon Blade is our proprietary tool for

> "If you take a look at the variety of different characters in the game, you have certain animation that can be shared between them, but there are still... movements distinguishing each group"
>
> **Christoph Schulte,** lead technical artist

Founded in 2001 by MD Philip Weiss, metricminds is one of Europe's leading animation providers. Having started out offering motion capture services, metricminds has evolved into a full service provider. One of the company's greatest strengths – and its current focus – lies in the creation of complete in-engine cutscenes for games.

**www.metricminds.com**

**Project** *Risen 2: Dark Waters*
**Description** The team at metricminds provided all the motion capture, primary and secondary animations (hair and cloth), motion capture for cutscenes, primary and secondary cutscene animation (hair and cloth), character setup (skinning) and facial animation setup for the human characters within *Risen 2: Dark Waters*
**Country** Germany
**Studio** Piranha Bytes
**Software used** Vicon Blade, Maya, MotionBuilder

Key people

**Christoph Schulte**
lead technical artist

Portfolio highlights

Some of the videogame projects that metricminds has been a part of:

F

**2012** *Sniper: Ghost Warrior 2*
**2012** *Enemy Front*
**2011** *Call of Juarez: The Cartel*
**2011** *Dead Island*
**2010** *Bulletstorm*
**2010** *Gears of War 3*
**2008** *Crysis Warhead*

A Like many RPGs, *Risen 2* is populated by different factions of characters, all of whom required their own animations to help convey a greater sense of personality

B "Piranha Bytes is a well-known and highly reputable development team here in Germany," Schulte explains. "With *Risen 2* it has established a brand new and successful IP within such a unique and interesting fantasy"

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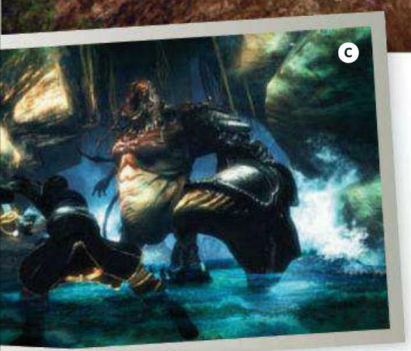
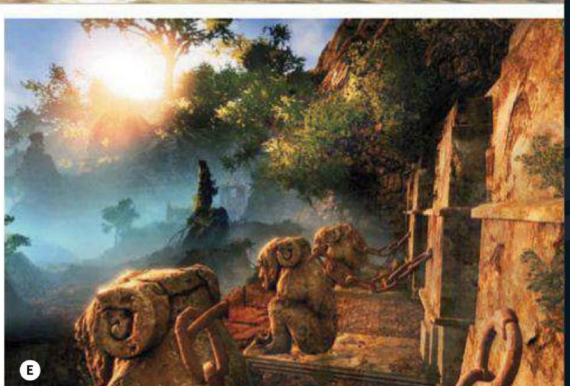
*Risen 2: Dark Waters* © Deep Silver, a division of Koch Media GmbH, Austria, and Deep Silver Inc. Larkspur, USA



doing all the mocap. We record... the data here before it's exported to MotionBuilder and Maya as FBX. Our mocap TD and a technical animator worked closely together, making the pipeline reliable and flexible so we could adapt the process very quickly and easily to any needs." Maya is used for skinning and secondary animation work on human characters – with time-eating clothing animations also a part of the project, Maya enabled the studio to create MEL scripts which shortened the skinning process for artists across metricminds.

MotionBuilder is the primary animation tool the studio uses within its development pipelines. "[It's] our go-to toolset for any related body animation done with mocap," Schulte explains . "The majority of all animation work was [completed] with motion editing in MotionBuilder."

*Risen 2* is the latest in a long line of videogame projects for metricminds that has managed to inspire a genuine passion for the subject matter. In this case the pirates and fantasy adventure combination was a big appeal for the team. "Without doubt, this definitely fuelled our passion for the project right from the start and we were honoured to be involved in developing such a big RPG franchise," Schulte says. "The pirate-themed fantasy really helps to define a certain style and ambience, and from what we have seen, the artistic design and stylistic direction of the game are spectacular."




*Risen 2: Dark Waters* is available now for Windows PCs and 25 May sees the release for PS3 and Xbox 360 from Deep Silver.

**C** The team at metricminds loves videogames, which definitely helps on a project like this. "This meant that everybody wanted to get involved, participate and produce great-looking work for [Piranha Bytes]"

**D** "All good RPGs have decent facial animation due to the fact that you, as the player, will be talking and interacting with all kinds of characters during the game," Schulte says. "This is a must to convey the story and the main plot of the game"

**E** Getting the minute details of the models right was essential. "The subtleties of human movement can transport different attitudes and intentions on a very passive level. A strong pose says a lot about a character," Schulte says

**F** Schulte explains how the studio used MotionBuilder: "Each animator was assigned a couple of animation clips that needed to be altered or looped. Afterwards, Piranha Bytes used these clips in Morpheme to blend these animation parts accurately"

Industry insider

# Safari Sosebee

Character/environment modeller and texture artist

## This Full Sail grad gives an insight into life in the film industry at the prestigious Luma Pictures VFX facility in Santa Monica, California

### About the insider

**Job** Character/environment modeller and texture artist

**Location** USA

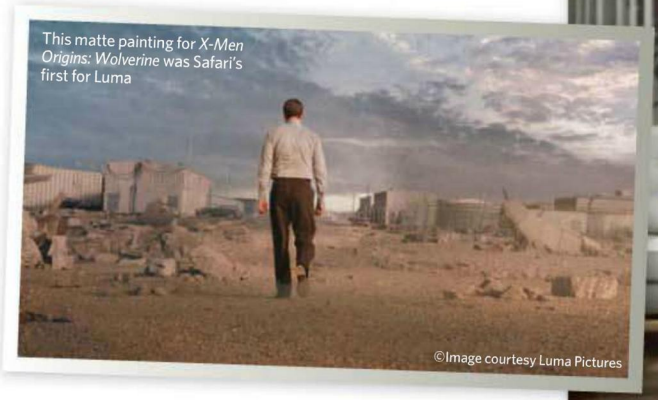
**Education** Computer Animation bachelor's degree, Full Sail University

**Company website** http://safarichris.com

**Biography** Safari grew up a child of the US military, meaning he moved around a lot during his youth, eventually settling in Germany where he'd often visit surrounding countries – stimulating his passion for art and architecture. Moving back to the States he pursued architecture until his senior year of high school, by which time his interests had shifted towards videogames. After studying at Full Sail University he later wound up in the film industry

**While Safari Sosebee was in full Demo Reel Creation (DRC) mode at Full Sail University, Luma Pictures was coincidentally scouting for fresh talent on the ramp up to *Underworld: Rise of the Lycans*.** With DRC being led by Steve Akehurst, Safari sent reels over to Luma to check out. Several weeks after graduating, he got the call. His response? "Hells, yeah!"

Following a morning interview, and with a one-way ticket in hand, he packed his bags for California.



This matte painting for *X-Men Origins: Wolverine* was Safari's first for Luma

©Image courtesy Luma Pictures

**3D Artist:** *Tell us about your role at Luma.*
**Safari Sosebee:** I started off as a modeller/texture artist, and with that came the shader development work – and those are my primary skills. But over time I was getting matte painting tasks and lighting small scenes. Now I'm given bigger scenes to light, so that when I test my shaders I know right away if they work properly with the type of lighting situation, I also [add] small comps to absolutely assure that all the textures are coming through the way I painted them.

**3DA:** *How prepared were you for working at Luma when you first arrived?*
**SS:** Prepared? I actually had no idea! Full Sail taught the basics of what a digital artist needs to know as far as the programs, and even the late nights that tend to happen. What I wasn't prepared for was the pressure of having to provide top-notch material. You see, in school I was getting by with a passing grade by doing the bare minimum and working on personal stuff for my reel; if it was below par, I would scrap it and move on. But for work... if you mess up and it gets delivered because time ran out... you're in some hot water!

**3DA:** *How quickly do projects turn around, and how do you keep up?*
**SS:** Projects tend to last a few to several months. Assets can be tricky: one lighting setup can make it look fantastic, but then put it through the other shots and comp, and there will always be tweaks. I tend to do a fast high-detail pass to block out values while putting in detail – even if the placement doesn't make sense – just to get everyone talking about a new direction.

**3DA:** *Which projects have been most demanding?*
**SS:** I think the most demanding so far has been *Underworld: Awakening*. I had done a couple of human characters before, but never a full creature. I was venturing into a world I had always wanted to be a part of, while at the same time wanting to just throw down my Wacom pen in outrage because the textures wouldn't work together, or the edge flow just wasn't working... I learned a great deal out of it however.

©Image courtesy Luma Pictures

**3DA:** *With technology rapidly changing, how do you keep your skills in form?*
**SS:** Right now I work in Maya, Photoshop, ZBrush, MARI, and NUKE. Texturing and modelling haven't changed in the last five years... but the way you [approach it has]. The speed of MARI only [shows] that content will be churned out quicker!

D

©Safari Sosebee

### Portfolio highlights

Some recent feature films that Safari has worked on:

**2012** Underworld: Awakening
**2011** Captain America: The First Avenger
**2011** Thor
**2010** The Green Hornet
**2010** True Grit
**2010** *'Cadbury: 75', television commercial*
**2010** Percy Jackson & the Lightning Thief
**2009** X-Men Origins: Wolverine
**2009** Harry Potter and the Half-Blood Prince
**2009** The Nutcracker

C

©Image courtesy Luma Pictures

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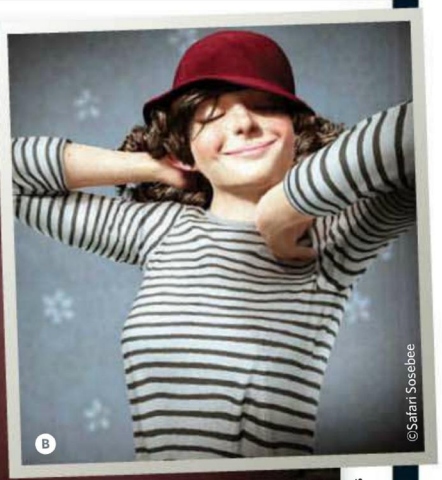
It's not just films at Luma: Safari also worked on the entertaining 'A Glass and a Half Full Production' of Freida Steer, the tap-dancing heifer that pays a delightful homage to Fred Astaire




©Image courtesy Luma Pictures

The most satisfying project Safari has worked on is *Thor*. "It was a good movie overall – plus seeing the Destroyer in commercials was cool!"

Safari's work on *Underworld: Awakening* gave him lessons in anatomy. "I learned a great deal with the Uber-Lycan"

©Image courtesy Luma Pictures

©Image courtesy Luma Pictures

> "I was venturing into a world I had always wanted to be a part of, while at the same time wanting to just throw down my Wacom pen in outrage"

**A** "I enjoy feeling the personality [of the character] and sometimes I can even imagine the continuation of their story, if the image is constructed well enough," Safari says

**B** Expressions need to be exaggerated in images to get a point across. "The great thing is that you can push it until breaking point – and even after that, there's still more room to push!"

**C** This necklace in the *Harry Potter and the Half-Blood Prince* movie was started off by Mathieu Aerni, and Safari finished it up. "I love the animation on this!" Safari adds

**D** It's important for Safari to make time for personal projects. "I have a few pages of ideas just written down that I haven't even started, on top of ones I've started but haven't finished."

**E** Safari thinks the snake count for Medusa in *Percy Jackson & the Lightning Thief* was over 70! "[It was] my first hero character in a film and it was quite a handful!"

The best courses and freshest talent from around the globe...

# Becoming a Better Artist

## Your art skills are just the tip of the iceberg – CGWorkshops can help you discover the hidden depths

**Rob Chang's Becoming a Better Artist course is designed for artists looking to progress their art to the next level – including those working with 3D.** "The number one failure of bad 3D artists is that they don't think the foundations of visual art applies to them, when that's the one thing they need more than anything else," says Chang.

So, although Becoming a Better Artist is based on fundamental art principles, techniques and approaches to 2D art, the lessons learned apply to all visual art forms. Whether you're sketching a concept or building a sculpture in Maya, Becoming a Better Artist will help you achieve your ideal vision.

The early part of the course teach the foundations of visual art that all competent artists must grasp, such as composition, lighting, values and colour, but to a depth not found in other instructional materials. Later weeks see students explore more sophisticated subjects such as the anatomy of visual vocabulary, colour theory and even examine personal issues such as the dangers of unchecked self-indulgence and inappropriate stylisation.

This course isn't just about technique, it also focuses on self-improvement as an individual, with Chang teaching students how to steer away from the common pitfalls such as insecurity in their work, indecision and a lack of discipline.

He also reveals invaluable career development tips and unveils an arsenal of secret weapons that advanced professionals use on a daily basis, such as a workflow that enables flexibility, speed and control. He even demonstrates his own techniques for preventing carpal tunnel syndrome for when you're working those long, repetitive hours.

For many past students, the course was as much of an intense boot camp as a workshop. "I got my brain ripped out, reorganised and jammed back in with a new comprehension of a world I have seen before but never truly understood," recalls course graduate Abbey Termeer.

You could liken Becoming a Better Artist to a mixed martial arts dojo for creatives. One that teaches not just technique, but also discipline and self-improvement. "To anyone even glancing at this course, take it," says course graduate James Filippone. "You have more to gain than you can possibly know. If you want to truly understand what it means to begin your journey to being a great artist, this is the best place to start."

> "I got my brain ripped out, reorganised and jammed back in with a new comprehension of a world I have seen before but never understood"
>
> **Abbey Termeer,** course graduate

### Staying a better artist

After the eight-week workshop finishes, students are transferred into the Better Artist Lounge. This website grants access to a private forum where Chang will mentor students by answering questions and providing critiques as well as updating the workshop material to the latest version. "If you become a student of mine, I remain your mentor for as long as you need me," says Chang. "I have made this promise to all of my past students and I have kept [it]."

A Rob Chang's course runs throughout the year, with a month's break between runs. Students work from home at their own pace – although putting aside eight hours a week is best to progress well

B Chang has worked in comic books, games, animation, TV, music and film. While working at Sony Pictures Imageworks, he created artwork for both *Spiderman 3* and *Surf's Up*

CGSOCIETY
SOCIETY OF DIGITAL ARTISTS

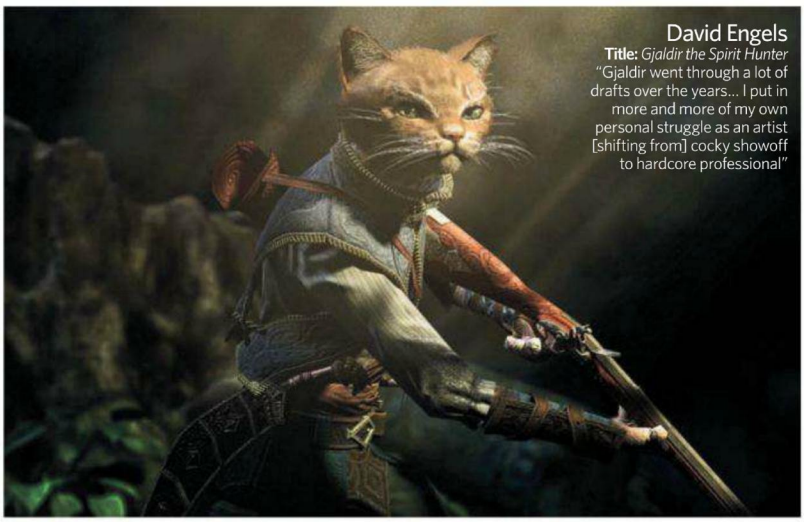
### Course details

**Name** Becoming a Better Artist
**Length** Eight weeks online
**Website** http://workshops.cgsociety.org
**Fees** Currently $599 US
**Entry requirements** Students will need Photoshop, a Wacom tablet, an appreciation of art and an ability to draw. This course caters to artists of all skill and experience levels, and across 2D and 3D media

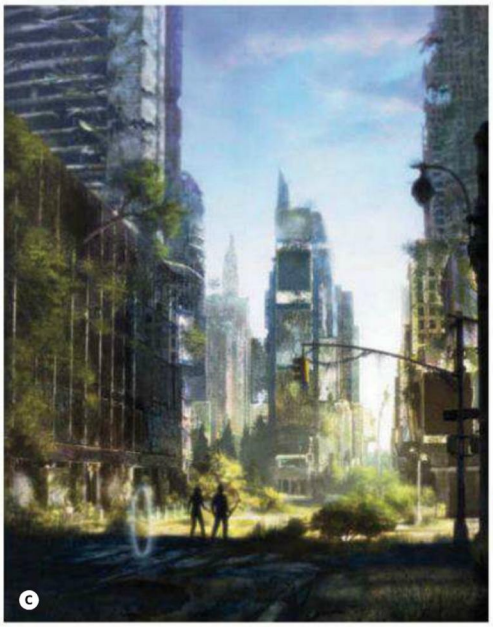
# focus

## STUDENT GALLERY

Below is a selection of both 2D and 3D art created by students on the course, demonstrating how computer artists of all disciplines can benefit



**David Engels**
**Title:** *Gjaldir the Spirit Hunter*
"Gjaldir went through a lot of drafts over the years... I put in more and more of my own personal struggle as an artist [shifting from] cocky showoff to hardcore professional"



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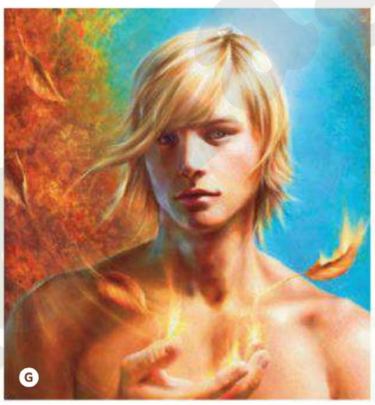


G

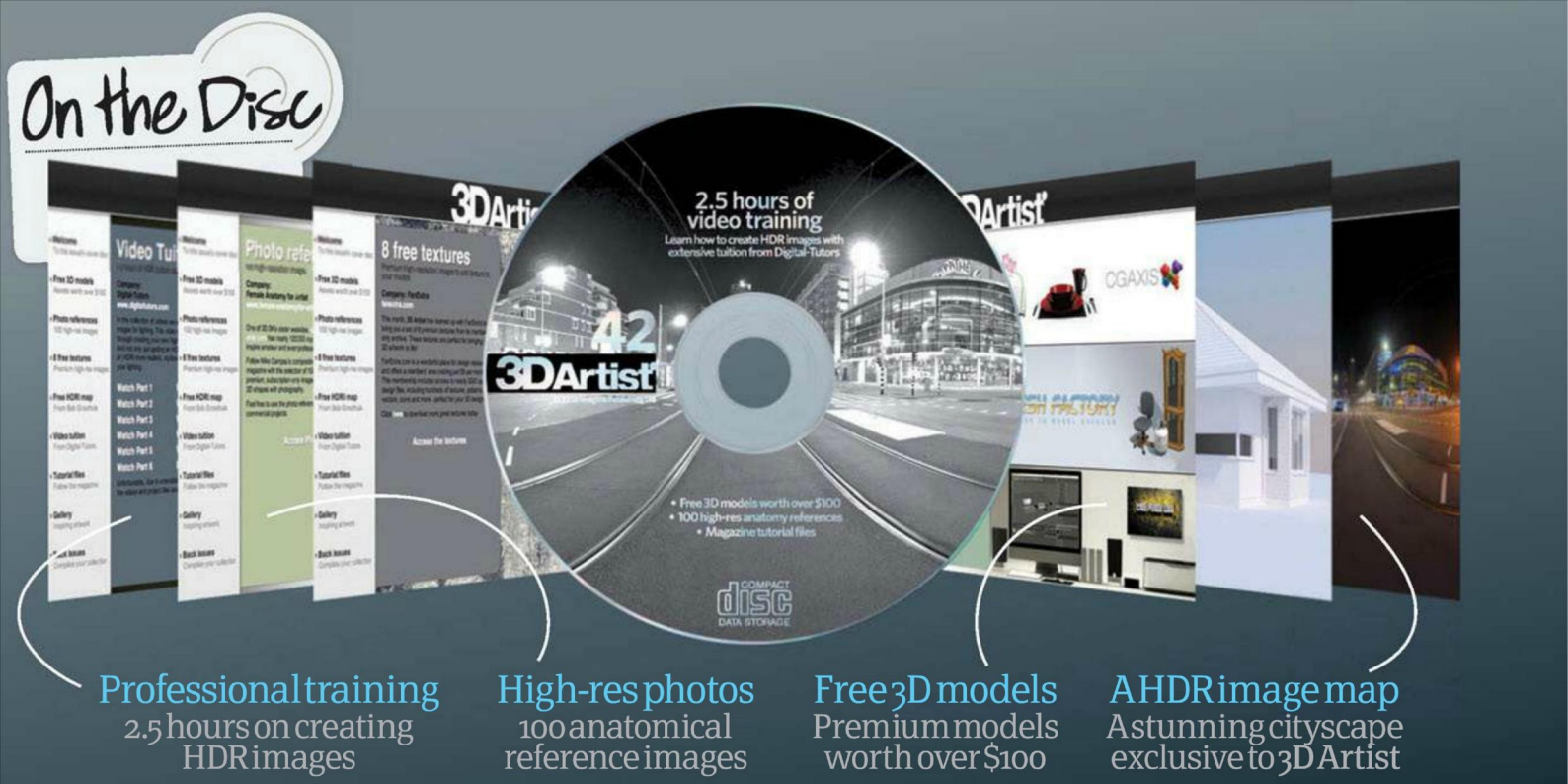
**C David Demaret**
**Title:** *Ghost Country*
"This was made for the novel *Ghost Country*... We can see here New York 70 years in the future with no traces of humanity. It's purely an illustration from the book"

**D Nele Klumpe**
**Title:** *Light In The Dark*
"Rob taught me that there's no magic trick in creating an image... With every picture I paint now I think about what [he] would say and adjust it according to that"

**E Wiebe Giebels**
**Title:** *Let's Dance*
"You are standing at a safe distance from the dance floor when this girl walks up to you, grabs your arm and pulls you to her... It's that moment... that I wanted to capture"

**F Luís Gama**
**Title:** *Ana*
"The portrait is of my sister Ana, which I did as a study after the workshop [that] basically started everything for me. I now work harder and really take art seriously"

**G Del Melchionda**
**Title:** *October*
"I got the idea to capture the spirit of October here in the Southern US, which is beautiful, filled with warm tones of gold, orange, and the contrasting brilliant blue sky"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• 100 high-res anatomy references
• Magazine tutorial files
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**A HDR image map**
A stunning cityscape exclusive to 3D Artist

# On the free disc

Discover 3D models worth $100, learn to create HDR images with 2.5 hours of video lessons from Digital-Tutors and this issue's tutorial files plus more

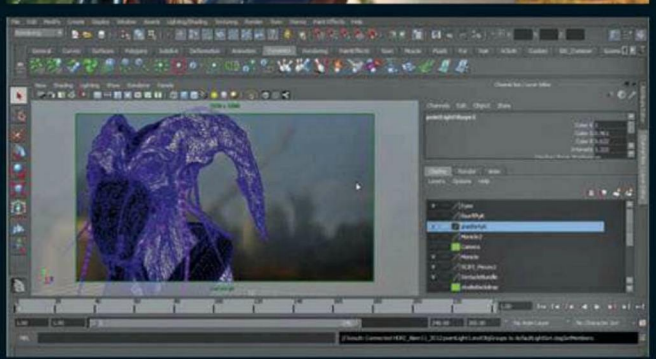
## All you need to follow this issue's workshops

## Tutorial files

**To accompany the final instalment of Lech Sokolowski's arch-vis series, we have sample shaders for your project, shader descriptions and the final render complete with all postproduction layers. Part three of this series can be found on page 66; complete your collection by picking up back issues from www.imagineshop.co.uk. To help you understand how Gustav Melich masters a collapsing bridge using Houdini (see page 86), be sure to check out the movie file to see the destruction in action!**

## 2.5 hours of video training

**Learn the art of HDR image creation with professional tuition from Digital-Tutors**



**Get stuck into this collection of 11 comprehensive videos from the masters of training, Digital-Tutors, to learn how to create your own HDR images for your projects.** The tuition will walk you through the creation process in Maya and Photoshop, giving you the confidence to use HDR imagery for more dynamic lighting in your scenes. This is a useful skill to use in both realistic and more stylistic creations.

For more training from Digital-Tutors head to **www.digitaltutors.com** to discover a library of over 17,000 video-based lessons, with more releases every month to help you with all aspects of your 3D projects.

# $100 worth of 3D models

## Free models courtesy of CGAxis, Mesh Factory and The Pixel Lab

**With over $100 worth of models to choose from, check out this issue's collection of model freebies to spice up your 3D projects:**

- Find ten tabletop objects from CGAxis' Home & Kitchen set in multiple file formats with textures included
- Try out a wooden cabinet and office chair from Mesh Factory to see what these helpful objects add to your interior designs
- Create your own desktop scene with the CINEMA 4D computer gear models, courtesy of online motion graphics site The Pixel Lab

## Free premium textures

### Use these high-res textures from FanExtra to add detail to your 3D

**Hot from the members-only archive at FanExtra is this set of premium textures.** Whether you want to fake detail in your scene with a nice texture, create maps for your models or in a painting project, grab the files for your ever-growing library of assets. You can never have too many assets!

FanExtra is a network of tutorial sites for creatives – head to **http://fanextra.com** to find out how you can get access to more resources for just $9 per month.

# 100 royalty-free photos

## Get inspired and improve your anatomy skills with high-res references

**Entirely free to use in any personal or commercial project,** these superb high-res photographic references courtesy of **www.female-anatomy-for-artist.com** perfectly complement Mike Campau's modo tutorial on page 52. Use the photos to follow along with the tutorial, or simply explore the dynamic poses to test your understanding of human anatomy. Why not try drawing or sculpting the poses and learn how to create a range of anatomical postures?

## Free HDR image map

### An exclusive cityscape for 3D Artist readers from Dutch photographer Bob Groothuis

**Check out this HDR image from Bob Groothuis, shot in the early hours of the morning exclusively for 3D Artist magazine, which comes complete with backplates.** Use these files in your personal projects to see how HDR images can light the way to better-looking 3D scenes! You can also explore the scene through the disc in Bob's trademark 360-degree virtual environment on the disc.

Please note that these files are prohibited from commercial use; they are intended to help you in your personal studies as a form of exercise. Visit **www.bobgroothuis.com** for more exciting HDR content as well as Bob's many other projects.

# Packed with 3D assets

# Getting started with the CD

Put the disc in the drive to deliver a wealth of 3D goodies to your desktop

Simply insert the disc into the hard drive and the menu will start running. Click Accept on the terms and conditions to progress to the menu itself.

You'll find access to 2.5 hours of video tuition, $100 worth of 3D models, 100 high-res anatomical reference photos, free textures, tutorial files and more.

## 2.5 hours of video training

Accompanying this issue's Masterclass tutorial on page 74 are 11 videos, courtesy of Digital-Tutors, to help you on the way to better HDR images.

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### Tutorial files

Lech Sokolowski completes his three-part tutorial series with a batch of tutorial files to help the learning process. Discover sample shaders for use in Blender, as well as shader descriptions and his final render complete with postproduction layers. Meanwhile, Gustav Melich demonstrates convincing destruction in Houdini, to accompany this issue's Back to Basics tutorial.

### High-quality resources

Get hoarding with this issue's supply of over $100 worth of free 3D models from CGAxis, Mesh Factory and The Pixel Lab, free textures from FanExtra, plus a HDR image courtesy of Dutch photographer Bob Groothius.

## On the Disc

**100 royalty-free photos**

Whether you choose to follow along with Mike Campau's tutorial to add exquisite shapes to photographic images of dancers, or simply want to brush up on your anatomy skills with these anatomy references, this set of 100 high-res photos from **www.female-anatomy-for-artist.com** will make a great addition to your library.

## 3DArtistonline.com

The fun doesn't stop with the magazine! There's the website and gallery for uploading your images and commenting on those of other 3D artists, and there's the forum for all your 3D-related questions, comments, discussions and problems. If you have suggestions for the magazine or just want to comment on each issue, then head over there and say your piece. Remember to sign up and register, then click for the forum to remember you for the next visit and you can post away.

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If the menu doesn't run or your disc is faulty then we will replace it free of charge. Just drop an email listing the problem to 3daxtrahelp@imagine-publishing.co.uk and it will be sorted out promptly. Please don't send mail about the disc to the editorial team, as that is the wrong department for dealing with your problem. If you are having problems getting the best out of individual programs or extras provided, then please contact the relevant software companies.

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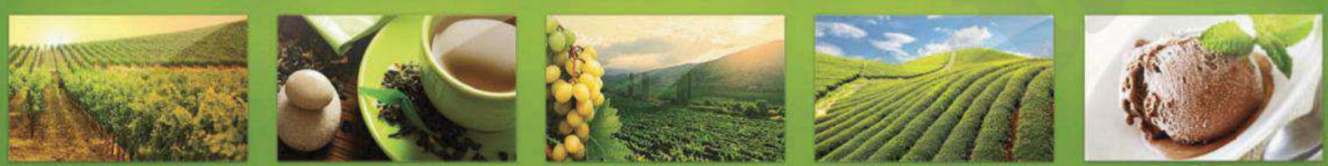

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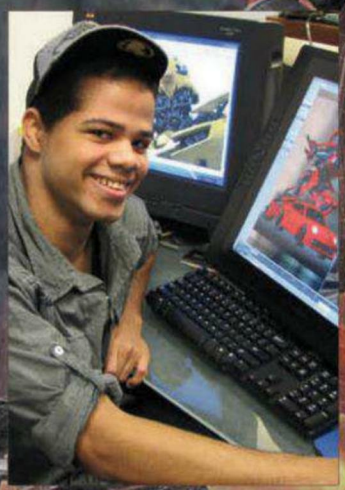

Timothy Fleur

"The DAVE School helped me achieve a new level of expertise in my work and gave me the skills I needed to get a job as a professional 3D artist."

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